

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES
INTELLECTUAL PROPERTY LIST (ChD)
INTELLECTUAL PROPERTY ENTERPRISE COURT

Rolls Building
New Fetter Lane
London

Date: 17 December 2025

Before :

HER HONOUR JUDGE MELISSA CLARKE
sitting as a Judge of the High Court

B E T W E E N :

PROF. ARDEMIS BOGHOSSIAN

Claimant

- and -

IOP PUBLISHING LIMITED

Defendant/Pt
20 Claimant

- and -

DR. DEJAN M DJOKIC

Pt 20
Defendant

Mr Joshua Marshall (instructed by Venner Shipley) for the **Claimant**
Mr Michael Hicks (instructed by RPC) for the **Defendant/Pt 20 Claimant**
The Pt 20 Defendant did not attend and was not represented

Hearing dates: 22 and 23 April 2025
Draft judgment circulated 11 December 2025

Judgment

Her Honour Judge Melissa Clarke:

A. INTRODUCTION

1. This is judgment in relation to a dispute which centres around authorship of an academic paper which was published in the scientific journal ‘*Nanotechnology*’ on 23 October 2017, and credited to Dr Djokic (the Part 20 Defendant) and Mr Aranya Goswami as named authors (the “**Djokic Paper**”). The Claimant, Professor Ardemis Boghossian, claims that she is a joint author of the Djokic Paper and did not consent to its publication such that publication infringed her literary copyright. The Defendant/Pt 20 Claimant, IOP Publishing Limited (“**IOP**”), is the publisher of the journal and is the publishing arm of the Institute of Physics.
2. Prof Boghossian is a chemical engineer and research scientist who although not employed at the time of the trial, in 2015 was an Assistant Professor at the Institute of Chemical Sciences and Engineering at the Ecole Polytechnique Federale de Lausanne (“**EPFL**”). There she led the Laboratory of Nanobiotechnology (“**LNB**”). In April 2015 she hired Dr Djokic in a postdoctoral role to assist on a research program she was leading, on fluorescence in single-walled carbon nanotubes (“**SWCNT**”s). She explains this in the following terms:

“A carbon nanotube is a tube of carbon atoms. A single-walled carbon nanotube consists of a single layer of carbon atoms, as opposed to a multi-walled carbon nanotube, which consists of several concentric layers of single layer tubes of different diameters. Unlike multi-walled carbon nanotubes, which do not readily emit fluorescence, certain kinds and diameters of single-walled carbon nanotubes are able to emit fluorescence light that is useful for different applications.”

3. Dr Djokic is now employed as a Senior Research Associate at the Institute of Physics in Belgrade, Serbia, which he says is equivalent to an Associate Professor at the University of Belgrade. He gained his PhD in 2012 at EPFL, and undertook postdoctoral research at the University of Geneva focussing on computational projects involving finite element analysis and modelling in

applied physics. Dr Djokic's contracted responsibilities in the LNB included computational and theoretical modelling of photophysical observations. Prof Boghossian also hired Mr Goswami, at that time an undergraduate studying Physics at university in India, as a summer intern to assist with the computational modelling. He started work on the computational model with Dr Djokic in May 2015.

4. There are significant areas of dispute about what Dr Djokic was working on and how that properly can be characterised, which I will return to. Dr Djokic typed up and prepared a draft paper in LaTeX software which was completed in advanced draft form and sent to Prof Boghossian in a non-editable version on 26 August 2015, entitled "*Quantum yield in polymer wrapped single walled carbon nanotubes*" (the "**Draft Paper**"). This listed, *inter alia*, Dr Djokic, Mr Goswami and Prof Boghossian as authors but there is a dispute about the extent to which Prof Boghossian was involved in its creation. The IOP relying on the evidence of Dr Djokic says she did not contribute at all; Prof Boghossian says that she made significant contributions to, *inter alia*, the structuring and content of the paper, and provided manuscript mark-ups of earlier drafts, such that the Draft Paper was a work of joint authorship between her, Dr Djokic and Mr Goswami. Mr Goswami returned to his studies in India at the end of his summer internship at EPFL in August 2015, although continued to work with Prof Boghossian remotely.
5. There is some dispute about the breakdown of the relationship between Prof Boghossian and Dr Djokic, but it appears to be common ground that he was not physically present in her lab from the end of September 2015, and ceased to be employed to work in her lab from December 2015.
6. In January 2016 there arose a dispute between Prof Boghossian and Dr Djokic arising out of his wish to publish a modified version of the Draft Paper (the "**Modified Paper**"). Both agreed that this dispute should be escalated to the ethics committee of EPFL ("**Ethics Committee**"). This resulted in a mediation process facilitated by EPFL in March and April 2016 involving Professor Benoit Deveaud, at that time the President of the Ethics Committee, and his colleague Susan Killias ("**the Mediation**") at which, Prof Boghossian and Dr Djokic both

agree, an agreement was reached about who would publish what academic papers, including the Modified Paper, and when. However they dispute the terms of that agreement.

7. About 15 months after the Mediation, in July 2017, Dr Djokic contacted Ms Killias asking for permission to publish the Modified Paper, and he received permission from her to do so on 25 July 2017. He submitted his paper to IOP on 20 August 2017, revised that draft on 21 September 2017, it was accepted for publication on 26 September 2017 and the Djokic Paper was published on 23 October 2017 in the printed and online editions of the journal ‘*Nanotechnology*’.
8. The IOP accepts that a substantial part of the Draft Paper is reproduced in the Modified Paper and in the Djokic Paper.
9. Although the Case Management Conference order of HHJ Hacon dated 14 October 2024 identifies eight issues to be determined at this split trial of liability only, the parties agree that there are really two key questions for the Court to answer in respect of the Claim: (i) whether Prof Boghossian is a joint author of the Draft Paper; and if so (ii) by the terms of the agreement reached at the Mediation, whether Prof Boghossian consented to the publication of the Djokic Paper.
10. Prof Boghossian did plead an alternative case to joint ownership, which is that she is the author of a distinct part of the Draft Paper (and so the Djokic Paper), with other parts being authored by Dr Djokic. However, she does not identify what distinct part she says that she has authored and Mr Marshall for Prof Boghossian in opening submitted that she has not particularised it as “*it is not possible to carve the paper into distinct parts and contributions from the authors*”. Although she does not abandon that alternative pleading, Mr Marshall accepted (in response to a comment from the bench that without particularisation it was unlikely to succeed) that it was a “*weak fall back*”. He did not press the alternative case in closing.
11. Turning to the Part 20 Claim, IOP claims that it published the Djokic Paper in good faith, relying on standard warranties given by Dr Djokic when he signed

an “*Assignment of copyright and publication agreement*” in advance of publication (“**IOP Agreement**”). Those warranties are found at paragraphs 2.1.1, 2.1.4 and 2.1.6 of the IOP Agreement. I will come back to those if it proves to be necessary. If the Court finds that Prof Boghossian is a joint author and owner of the literary copyright in the Djokic Paper and did not consent to its publication, then:

- i) IOP accepts by publishing the Djokic Paper it (unintentionally) infringed that copyright;
- ii) IOP’s case is that it follows that Dr Djokic is in breach of the warranties in the IOP Agreement;
- iii) IOP seeks a contribution and indemnity from Dr Djokic pursuant to paragraph 2.2 of the IOP Agreement.

12. Dr Djokic’s position is that Prof Boghossian is not a joint author of the Draft Paper and so has no rights of copyright in it. Accordingly it is his position that he is not in breach of the warranties he gave to IOP in the IOP Agreement.

13. Mr Joshua Marshall represents Prof Boghossian and Mr Michael Hicks represents IOP. They have filed skeleton arguments for which I am grateful. I am also grateful for their oral submissions at trial. Dr Djokic is a litigant in person who has not provided a skeleton argument and did not attend trial. Although he has been involved in these proceedings, having filed a Defence to the Part 20 Claim and a witness statement dated 17 February 2025, he: (i) did not participate in the CMC before HHJ Hacon in October 2024; (ii) indicated in his witness statement that he did not intend to participate at trial, and (iii) told Professor Benoit Deveaud by telephone conversation on Thursday 17 April 2025, a few days before trial, that he “*was not attending*” the trial. Arrangements had been made for him to attend the trial and give evidence remotely by video link from a local court in Serbia, but I am told he does not appear to have attempted to access that link during the trial.

14. I made a decision to proceed with the trial in his absence, for reasons I gave at the time which included that Dr Djokic had made no application to adjourn it and both Prof Boghossian and IOP wished the trial to proceed.

B. APPLICATION TO STRIKE OUT DR DJOKIC'S PART 20 DEFENCE

15. Prof Boghossian made an oral application at trial to strike out Dr Djokic's Part 20 defence pursuant to CPR 39.3(1), and, whether or not it does so, asks that the Court place no weight on Dr Djokic's witness evidence.
16. CPR 39.3(1) provides that:

The court may proceed with a trial in the absence of a party but

...

(c) if a defendant does not attend, it may strike out his defence or counterclaim (or both)".

17. CPR 39.3(3) provides that:

Where a party does not attend and the court gives judgment or makes an order against him, the party who failed to attend may apply for the judgment or order to be set aside.

18. Mr Marshall for Prof Boghossian accepts that a decision to strike out is a matter for the exercise of my judicial discretion. He further accepts that striking out Dr Djokic's Part 20 defence would not absolve Prof Boghossian of her burden for proving her claim. He acknowledges that Prof Boghossian is not a party to the Part 20 claim, but submits that in circumstances where, in IPEC, the pleadings stand as evidence, such that the Part 20 defence forms part of Dr Djokic's evidence-in-chief which is relied on by IOP to defend against the claim that she is a joint author of the Draft Paper and did not consent to publication of the Djokic Paper, she has standing to make the application.
19. Although Prof Boghossian was in no position to make this application to strike out until Dr Djokic failed to attend trial, Mr Marshall accepted that she has not warned Dr Djokic that she would do so if he did not attend. I do acknowledge that Dr Djokic has refused to engage with her and her legal representatives

which he said was detrimental to his mental health, such that all contact with him has been through IOP.

20. Mr Hicks for IOP submits that the nature of this case, with a defended claim and then a Part 20 claim brought by IOP against Dr Djokic who defends it, is not the same as a two-party case where one party does not attend the trial, and the opposing party seeks to short-cut the trial and avoid the need for witnesses to be called and findings of fact to be made by strike out of the defence. In this case, he submits, striking out the Part 20 defence will not save any court time. I accept that submission. The IOP does not seek the strike out of Dr Djokic's Part 20 defence and Mr Hicks submits there is therefore no reason or need for the court to execute the jurisdiction, although he stops short of arguing that Prof Boghossian has no standing to make the application. He submits that the reason for Dr Djokic's failure to attend is a relevant factor to take into account when considering whether to exercise the discretion. In this case although Dr Djokic has not filed medical evidence he has indicated in his witness statement that the filing of his evidence "*does not imply my further participation in these proceedings due to the significant deterioration of my mental health*".
21. After considering all the relevant circumstances, I decline to exercise the CPR 39.3(1) discretion to strike out Dr Djokic's Part 20 defence. Even if I were to strike it out, CPR 32.5 applies, which provides at CPR 32.5(5):

If a party who has served a witness statement does not – (a) call the witness to give evidence at trial; or (b) put the witness statement in as hearsay evidence, any other party may put the witness statement in as hearsay evidence.

22. In other words, CPR 32.5(5) provides that any other party may rely on witness evidence filed by a party who does not attend at trial as hearsay evidence. This is an important safeguard, and IOP is clear it would seek to rely on Dr Djokic's witness statement as hearsay. It is unclear what the position is in IPEC, however, where the pleadings stand as evidence of fact. It would seem at least arguable that if I were to strike out Dr Djokic's Part 20 defence, that would have the effect of making the evidence contained in that pleading unavailable to be relied on as hearsay by IOP, as CPR 32.5 only applies to a witness statement and not

to pleadings which stand as evidence. That would not seem to me to be a justifiable or fair result.

23. In my judgment, to strike out the defence to the Part 20 claim against the wishes of IOP as Part 20 claimant and in a way which would prevent IOP from being able to rely on the evidence the Part 20 defence contains as hearsay would be unduly prejudicial to IOP's ability to defend the Claim.

C. WITNESSES

24. Prof Boghossian made a witness statement dated 17 February 2025. I found Prof Boghossian to be an unsatisfactory and unreliable witness, although seemingly thoughtful in giving her oral evidence. That is because her written and oral evidence was very often contradicted by the contemporaneous documentary evidence, as I will come on to relate, and by the evidence of other reliable and credible witnesses in particular Prof Deveaud. I accept IOP's submission that she has been so focussed for so many years in pursuing grievances of one kind or another arising from the brief period that Dr Djokic was in her lab 10 years ago now, that she has become mired in the process. In my judgment she has lost all insight or understanding of what is true, what is not true and what is merely a straw to seize in an attempt to construct an argument.
25. Prof Deveaud made three witness statements for IOP dated 10 April 2024, 20 June 2024 and 17 February 2025. I found Prof Deveaud to be a good witness giving credible and reliable evidence about matters on which he had direct knowledge. I make that assessment despite knowing that he did make a mistake some time ago when he reported that he had seen a copy of a draft paper that Prof Boghossian wished to publish in ACS Nano (the Aranya Paper) at the time of the Mediation. However when she challenged him on this, noting that she had not produced a draft at that time, he promptly and correctly accepted that he was mistaken. I do not think that undermines the evidence he has given in these proceedings. In fact it has made him more careful, I think, only to give evidence absolutely within his recollection. Prof Deveaud is retired and has no interest in these proceedings and I am grateful for the assistance he has given

the Court. I give his evidence significant weight. Where his evidence contradicts that of Prof Boghossian I prefer his evidence.

26. Mr Semple's evidence for IOP was straightforward and I am satisfied it is credible and reliable. His witness statement was dated 17 February 2025.
27. Dr Djokic made a witness statement for himself, but on which IOP also relies, dated 17 February 2025. He did not attend at trial and so his evidence could not be challenged by Prof Boghossian in cross-examination who asks that I give it no weight. I decline to do so, but I give it very little weight except where it is supported by other credible and reliable evidence including contemporaneous documentation.

D. ISSUE 1 – JOINT AUTHORSHIP

Law

28. There is no dispute between the parties on the law.
29. Pursuant to section 1(1) Copyright Designs and Patents Act 1988 (“CDPA”), copyright subsists in, *inter alia*, original literary, dramatic, musical or artistic works. Although the Draft Paper, the Modified Paper and the Djokic Paper are illustrated, this claim is brought by Prof Boghossian only in breach of literary copyright in the text of the Draft Paper.
30. Pursuant to section 9(1) CDPA, “author” in relation to a work means the person who creates it, and section 10(1) CDPA provides that “joint authorship” means a work produced by the collaboration of two or more authors in which the contribution of each author is not distinct from that of the other author or authors.
31. Section 11(1) CDPA provides that the author of a work is the first owner of any copyright in it, but this is subject to, *inter alia*, section 11(2) CDPA which provides that “*where a literary... work is made by an employee in the course of his employment, his employer is the first owner of any copyright in the work subject to any agreement to the contrary*”. It appears to be common ground that the employment agreements of both Prof Boghossian and Dr Djokic provide to

the contrary, namely that, *inter alia*, they each own the copyright to literary works they author during the course of their employment.

32. Section 16 CDPA provides that the owner of copyright in a work has the exclusive right to do the acts listed in Section 16(1) CDPA and copyright in a work is infringed by a person who without the licence of the copyright owner does, or authorises another to do, any of the acts restricted by copyright in relation to that work as a whole or any substantial part of it, either directly or indirectly.
33. The burden is on Prof Boghossian to satisfy the Court on the balance of probabilities that she is a joint author of the Draft Paper.
34. In *Kogan v Martin* [2019] EWCA Civ 1645, [2020] FSR 3, Floyd LJ, giving the judgment of the Court, described joint authorship at [31] as “*ultimately a unitary concept*”, but one in which the four elements of joint authorship required by section 10(1) CDPA must exist, namely collaboration, authorship, contribution and non-distinctness of contribution. Following discussion of each of these four elements and a review of the relevant authorities, Floyd LJ provided 11 principles relating to joint authorship at [53]:
 1. A work of joint authorship is a work produced by the collaboration of all the people who created it.
 2. There will be a collaboration where those people undertake jointly to create the work with a common design as to its general outline, and where they share the labour of working it out. The first task for the court in such a case is to determine the nature of the co-operation between the putative joint authors which resulted in the creation of the work.
 3. Derivative works do not qualify. Works where one of the putative authors only provides editorial corrections or critique, but where there is no wider collaboration, do not qualify. *Ad hoc* suggestions of phrases or ideas where there is no wider collaboration do not qualify.
 4. In determining whether there is a collaboration to create a literary or artistic work it is never enough to ask, "who did the writing?". Authors can collaborate to create a work in many different ways. For example there may be joint authorship if one person creates the plot and the other writes the words, or if either or both of these types of labour is shared.

5. Joint authors must be authors, in the sense that they must have contributed a significant amount of the skill which went into the creation of the work. Again, it is not correct to focus exclusively on who fixed the work in writing. The statutory concept of an author includes all those who created, selected or gathered together the detailed concepts or emotions which the words have fixed in writing.
6. Contributions which are not "authorial" in the above sense do not count. What counts as an authorial contribution is acutely sensitive to the nature of the copyright work in question.
7. The question of what is enough of a contribution is to be judged by the *Infopaq* test, i.e. whether the putative joint author has contributed elements which expressed that person's own intellectual creation. The essence of that term is that the person in question must have exercised free and expressive choices. The more restrictive the choices the less likely it will be that they satisfy the test.
8. The contribution of a putative joint author must not be distinct.
9. There is no further requirement that the authors must have subjectively intended to create a work of joint authorship.
10. The fact that one of the authors has the final say on what goes into the work may have some relevance to whether there is a collaboration, but is not conclusive. The author with the final say must be given credit in deciding on the relative proportions of ownership, for the extra work involved in making those choices.
11. It follows that the respective shares of joint authors are not required to be equal, but can reflect, pro rata, the relative amounts of their contributions.

35. The Defendant relies on a number of authorities which emphasise that care must be taken in relation to scientific papers because insofar as they describe technical, scientific or mathematical concepts, the room for creative freedom of expression in an *Infopaq* sense may be limited or non-existent. See Arnold LJ in *Wright v BTC Core* [2023] EWCA Civ 868, at [55], where he held that the requirement that the work be the author's own intellectual creation “*is not satisfied where the content of the work is dictated by technical considerations, rules or other constraints which leave no room for creative freedom...*” and at

[56] where he cited a passage from Case C-310/17 *Levola Hengelo BV v Smilde Foods BV* [EU:C:2018:899]:

“39. Under Article 2(1) Of the Berne Convention, literary and artistic works include every production in the literary, scientific and artistic domain, whatever the mode or form of its expression may be. Moreover, in accordance with Article 2 of the WIPO Copyright Treaty and Article 9(2) of the Agreement on Trade-Related Aspects of Intellectual Property Rights,... which also forms part of the EU legal order..., **copyright protection may be granted to expressions, but not to ideas, procedures, methods of operation or mathematical concepts as such....**” (my emphasis).

36. See also *Baigent v Random House Group Ltd* [2007] EWCA Civ 247, [2008] EMLR 7 in which the Claimant, who had published a non-fiction book “*The Holy Blood and the Holy Grail*”, referred to in the judgment as HBHG, claimed that “*The Da Vinci Code*” infringed his copyright by copying fifteen elements of his central theme. Mummery LJ said at [156], in the context of a discussion which began at [153] about whether the central theme and its elements were a substantial part of HBHG for the purposes of copyright infringement, held that they were not. He described them in [154] as “*an assortment of items of historical fact and information, virtual history, events, incidents, theories, arguments and propositions*”, and noted at [155] that “*Of course it takes time, effort and skill to conduct historical research, to collect materials for a book, to decide what facts are established by the evidence and to formulate arguments, theories, hypotheses, propositions and conclusions. It does not, however follow that the use of items of information fact and so on derived from the assembled material is, in itself, a “substantial part” of HBHG simply because it has taken time skill and effort to carry out the necessary research*”. He continued:

“156. The literary copyright exists in HBHG by reason of the skill and labour expended by the claimants in the original composition and production of it and the original manner or form of expression of the results of their research period. Original expression includes not only the language in which the work is composed, but also the original selection, arrangement and compilation of the raw research material. **It does not, however, extend to clothing information, facts, ideas, theories and themes with exclusive property rights, so as to enable the claimants to monopolise historical research or knowledge and prevent the legitimate use of historical and**

biographical material, theories propounded, general arguments deployed, or general hypotheses suggested (whether they are sound or not) or general themes written about.” (my emphasis).

Pleadings

37. As noted, in IPEC statements of case stand as evidence. For that reason and in this case, as is common in IPEC, there is an overlap between the pleadings and the evidence.
38. Prof Boghossian’s pleaded case in the Particulars of Claim is that in or around August 2015 she and Dr Djokic collaboratively prepared the text of the Draft Paper describing their work. She pleads that this “*covered an analytical model and a computational model*”. She pleads that as the senior researcher, she was principally responsible for deciding the content of the Draft Paper, but the drafting of the actual text was a joint effort between her and Dr Djokic, and she is not able to say which of the words in the Draft Paper are hers and which are Dr Djokic’s. Accordingly, she pleads, the Draft Paper is a work of joint authorship within the definition in s10(1) CDPA. This is really the extent of her pleading on joint authorship in the Particulars of Claim.
39. In Dr Djokic’s Defence to the Part 20 Claim he avers that he authored the Draft Paper entirely by himself (with Mr Goswami contributing later), that Prof Boghossian had “*zero input into either the submitted or published version of the Draft*” and that he “*single-handedly prepared and wrote the Draft within the LaTeX computer program. Throughout the drafting process, I initiated the ideas, conducted data acquisition, analysis and interpretation, generated and compiled all figures and performed calculations, all utilizing EPFL’s computer resources. Upon finalizing the Draft, I included the names of all my coworkers within the LNB group in good faith, a customary practice in academia to invite potential collaborators. My intention was to encourage their participation, allowing them to provide their own contributions or designs to the draft, or to potentially acquire, analyze or interpret additional data beneficial to the final manuscript. I entrusted my colleagues with the possibility of co-authorship, although they had not yet contributed at that stage.*”.

40. Dr Djokic says that when he distributed his draft to colleagues, he provided them with the file in PDF format, not LaTeX, and said “*Despite this, [Prof Boghossian], the head of the group, did not contribute any input, corrections or suggestions to the Draft. While she mentioned the presence of mistakes, she consistently declined to specify these errors*”. He pleads that before he left to go on holiday on 4 September 2015 she had requested the original LaTeX source of the Draft Paper, which he described as “*the first instance where she requested access to the Draft for potential modifications*” and said he found her request “*peculiar, considering her previous reluctance to contribute*”. Nonetheless he provided her with the draft in LaTeX format, hoping that she might assist, but he pleads that “*neither before nor after this date did she make any changes to the Draft.*”

41. Dr Djokic pleads that “*If [Prof Boghossian] had contributed as she claims, she would have submitted the Draft in LaTeX format with her modifications, or at least there would be email correspondence between us detailing how the work was divided or performed*”, and described it as “*inconceivable that contributors from such divergent disciplines...*” (he a Physicist, she a Chemical Engineer) “*...could not discern or recall their respective contributions within the same paper*”. He denies at para 18 that the Draft Paper was the result of a joint collaboration, saying “*the Claimant had her own separate project, which was referred to in correspondence as the “Aranya model” and I was also one of the co-authors of that paper but, it was a different paper*”.

42. In her Reply to Defence, Prof Boghossian *inter alia* denies that her role in the research project was limited to supervisor and that Dr Djokic named her as an author of the Draft Paper only because of her position as supervisor of the research. She pleads at para 7(d) and (e) that she was provided by Dr Djokic with drafts of the Draft Paper for review in her capacity as joint author, and that in reviewing such drafts, she provided corrections, insertions, amendments and/or improvements by way of manuscript amendments hand-written on hard copy printed copies which were returned to Dr Djokic to type up or carry out.

Evidence

43. Prof Boghossian says that on her arrival at EPFL she needed to set up specialised equipment in order to make SWCNT fluorescence measurements to take forward her research, and this required custom-built setups which take months to build. For that reason she decided to commence "*a computational project*" which would allow her to start her research while this equipment was being built. This would shorten the time to her first publication, which was important as her evaluations for funding and tenure would depend heavily on her publication record during her professorship. I accept this evidence.

44. Prof Boghossian says that she first hired Mr Goswami in December 2014, having been sent his profile by an EPFL internship coordinator as a possible summer intern, and following discussions together they agreed to start a project on the computational modelling of SWCNT for his internship period which would run from May to July 2015. The project was to solve what happens when a polymer is wrapped around a SWCNT at different angles and particles collide with the polymer. The two possibilities to be investigated were (i) that the polymer may be wrapped so that it runs along the axis of the nanotube, or (ii) that the polymer may be wrapped in a spiral around the nanotube. The wrapping angle is referred to by the use of the Greek letter ϕ or "phi". Where the polymer is aligned with its axis "x" of the nanotube, this referred to as " $\phi = 0$ ". This is as shown in Figure 1 below (where the polymer is represented by the line of red dots):

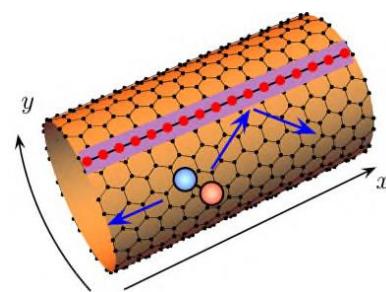


Figure 1

45. The second possibility covered situations where the polymer is wrapped around the nanotube at any angle other than in alignment with its axis, described collectively as " $\phi \neq 0$ ", as illustrated below.



Figure 2

46. It is not disputed that Prof Boghossian posted an advertisement for a postdoctoral position, which would involve building the equipment setup for the lab, characterise nanotubes using an existing commercial setup at EPFL, and synthesise SWCNT samples. She says that Dr Djokic contacted her in January 2015, and after an interview in which he expressed a strong interest in computation and theory work, she hired him to start in April 2015 to contribute to building her lab setup and taking measurements, developing the computation project, training and supervising students, proposal writing and other administrative tasks.
47. Dr Djokic describes himself as a physicist with expertise in both experimental and theoretical physics, with a particular focus on photophysics, and theoretical/computational/numerical modelling. It is common ground between the parties that theoretical modelling in physics involves two main approaches: analytical modelling, which uses mathematical formulas to solve problems; and computational or numerical modelling, which relies on computer simulations to approximate solutions to complex problems. Dr Djokic's contract with EPFL (in the trial bundle) shows that his responsibilities included, *inter alia*, computational and theoretical modelling of photophysical observations (30%), microscope set-up and application (35%) and teaching duties (25%).
48. After Mr Goswami arrived at EPFL for his internship at the beginning of May 2015, he began working on the computational model described above, with Dr Djokic. Prof Boghossian says that although Dr Djokic was hired to, *inter alia*, assist with building her lab set up, that work was mainly done by another PhD

student, so Dr Djokic's focus became working with Mr Goswami. I do not understand Dr Djokic to dispute this. She said that although Mr Goswami had experience in computation, he did not have experience with the transport equations (equations which describe the transport of some quantity, such as fluid or particles, which are moving due to a concentration gradient or mixing) and that part of Dr Djokic's work was to train Mr Goswami on those equations. Dr Djokic agrees that a material part of his work was supervising and training Mr Goswami.

49. Prof Boghossian says that Dr Djokic's office at EPFL was very close to hers, they kept their doors open, and their discussions were all largely in person save when she was travelling. Notwithstanding this latter evidence, there has been disclosed fairly extensive email communication between them, Mr Goswami and other members of the team for the period from April 2015 until Dr Djokic's departure from the lab in September 2015, and beyond. She described her meetings with Dr Djokic as generally unscheduled and informal, although gradually they regularised formal meetings on a roughly weekly basis. This process of regular formal meetings with team members can be seen in the contemporary email communications. She says she, Dr Djokic and Mr Goswami would meet in Dr Djokic's and Mr Goswami's shared office to discuss process and troubleshoot issues. I accept that they did have meetings which are referred to within the contemporaneous evidence.
50. Prof Boghossian's written evidence is that at the end of May she was away from EPFL until the beginning of June to attend a conference. She said that on her return "*I discovered that Dr Djokic was still struggling to solve the problem computationally and insisted on using an analytical approach.*". She says that she set up training sessions for Dr Djokic and Mr Goswami to show them how to solve the problem computationally, and also provided reading material and example problems to assist them. However, she said, Dr Djokic "*was never able to get his own computational model to work and had only the analytical approach that he worked on earlier in the summer*". She refers to that analytical approach as "the Skew model", although that use is disputed. Prof Boghossian says that the analytical approach used by Dr Djokic was limited to solving a

simplified case ($\varphi = 0$) and not the “*more interesting*” cases where $\varphi \neq 0$ could only be done computationally due to the complexity of the equation. She described this as an initial “*difference of opinion*” between them, which became a “*point of contention*” once she had returned from her conference. Prof Boghossian says in her written evidence that even after her training sessions, Dr Djokic continued to struggle with the computational model, and so she arranged a series of informal meetings with him and Mr Goswami on 22, 23, 24 and 25 June 2015. Her evidence is that Dr Djokic did not attend all of them and so she mainly met with Mr Goswami alone and, by the end of June, she and Mr Goswami got the computational model in MATLAB working.

51. In Dr Djokic’s evidence he disputes the paragraph above on almost every point. However, Prof Boghossian’s oral evidence at trial went even further. She said in cross-examination that there was really only one computational model that worked, and that was the computational model that Mr Goswami had written in MATLAB with her assistance (the “**Aranya model**”). Because Dr Djokic was unfamiliar with MATLAB, she says, he had translated the Aranya model into R, which he was more familiar with. As she put it in her cross-examination, “*The model in R [in the Draft Paper] was the Aranya model*”.
52. I do accept, as is Prof Boghossian’s evidence and can be discerned from contemporaneous email correspondence, that the starting point for Dr Djokic’s model in R (which he calls the “Skew model”) was his translation into R of Mr Goswami’s early model in MATLAB, because R was the program Dr Djokic was more proficient in using. However, his evidence is that at the beginning of the summer, he and Mr Goswami collaboratively developed two distinct approaches to modelling 2D exciton diffusion dynamics on the surface of SWCNTs. He said:

“To facilitate the process, we divided the tasks, each of us independently addressing one of the two approaches, relying on two specialised software programs: R and MATLAB. These programs are employed to simulate physical systems and solve mathematical models using computational/numerical methods. R is a statistical programming language widely utilized for data analysis and computations, whereas MATLAB is a high-level programming environment particularly effective for matrix

computations and data visualization... both computational tools are used to perform advanced numerical calculations. Although distinct, both computational tools are used to perform advanced numerical calculations. Specifically, I myself focused on the skew model by solving numerical equations in R, while Aranya worked on a separate model solving equations in MATLAB. Subsequently, the Claimant joined Aranya in his efforts to develop numerical solutions to the model in MATLAB, while I continued working, on my own independently, on computing the solutions to my skew model.”.

53. Prof Boghossian’s characterisation at trial of Dr Djokic’s model in R being no more than a translation of Mr Goswami’s developed Aranya model in MATLAB, such that Dr Djokic’s only real contribution was the analytic solution, permeates her evidence and her submissions in relation to both issues, but I am satisfied that it is not reliable or true. In my judgment the contemporaneous documentation supports Dr Djokic’s evidence that:
 - i) his model in R was a separate project from the work Mr Goswami was doing developing the Aranya model in MATLAB; and
 - ii) it was Dr Djokic’s model in R which formed the computational element to the Draft Paper, not a mere translation into R of the Aranya model.
54. For example, there is an email from Prof Boghossian to Dr Djokic and Mr Goswami of 6 August 2015 in which she discusses whether, in writing up what became the Draft Paper, “*we should put all the models in 1 paper or separate them into 2*”. In cross-examination she said that she was talking about the same model (being the Aranya model) but running it under different conditions in order to produce a follow-up paper, but this is not what the email says. In my view she is referring to Dr Djokic’s model in R, and the Aranya model, which were different.
55. After the date of the Draft Paper, when Dr Djokic went on holiday shortly before being released by Prof Boghossian from the lab, she wrote an email to Mr Goswami of 13 September 2015 saying “*Thanks for the view of the code. I’m also going to go over Dejan’s code (as he is on vacation these days) to make sure there everything checks out on our end as well*”. In my judgment, she is

referring there first to the code for the Aranya model which she had been helping Mr Goswami develop, and second to the code for Dr Djokic's model in R.

56. That it was Dr Djokic's model in R which formed the computational element of the Draft Paper and not a mere translation into R of the fully developed Aranya model is put beyond doubt, in my judgment, by an exchange of correspondence between Prof Boghossian and Dr Djokic of 28 October 2015. In her email, she reminded him of "*two primary changes*" that she considered needed to be made to the Draft Paper, which they had discussed on 30 September 2015. The second such change was that it should include a numerical solution "*that explores the properties of the system using both reflective (impermeable) and diffusive (permeable) conditions at the polymer interface*". She said, "*We agreed that the program written in R is incapable of simulating the permeable boundary condition, and we discussed using Aranya's model that was written in Matlab to address this point.*" Dr Djokic responded saying that he had contacted Mr Goswami who "*agreed that the paper can be published at this stage without going into further computations – he expressed doubts about his MATLAB code*". I take from that exchange that (i) the model in R was different to Aranya's model in MATLAB merely translated into R and Prof Boghossian understood that; (ii) Aranya's model in MATLAB would not meet the purpose that Prof Boghossian sought to use it for; and (iii) that neither Dr Djokic nor Mr Goswami agreed that the change she suggested was necessary. The change did not find its way into any later iteration of the Draft Paper, including the Djokic Paper as published.
57. For those reasons I do not accept Prof Boghossian's evidence that Dr Djokic 'never got his computational model to work'. Dr Djokic's model in R was in my judgment the computational/numerical model used in the Draft Paper, Modified Paper and Djokic Paper. The Djokic Paper went through peer review, was published and although little-cited, has not been criticised or corrected by others.
58. It follows that I also do not accept that Dr Djokic only contributed an analytical approach to the Draft Paper limited to solving $\varphi = 0$, or that Prof Boghossian understood that at the time to be the case. His model in R contained in the Draft

Paper expressly “solved $\varphi \neq 0$ numerically due to its complexity arising from the boundary conditions which mix x and y contributions to the exciton fluxes as soon as φ moves away from zero”, as described in section 3.2 of the Draft Paper.

59. It was not put to Prof Boghossian that in mischaracterising Dr Djokic’s work in this way she was being dishonest or seeking deliberately to mislead the Court, rather that she has persuaded herself that things that were said and done years ago did not actually happen and she has implanted memories of things that were said and done that were not, having over some 9 years gone over the issues so many times through various ethics violation complaints, investigations into academic plagiarism and now proceedings for copyright infringement. She denied that she was confused or misremembering but I am satisfied that her evidence on these issues has become entirely unreliable.
60. Returning to the chronology, and Prof Boghossian’s evidence, Mr Goswami was returning to India after his internship ended in mid-July 2015, although Prof Boghossian said that he was interested on continuing to work on the model from India with a view to publishing his work. I am satisfied that it is the Aranya model that she is referring to. She said “*With the start of the new semester... I needed to make sure we still had somebody full-time in the lab who was able to run the computer code to generate the relevant figures, prepare the manuscript, and address possible reviewers' concerns for the paper we intended to publish*”. She suggested to Mr Goswami that he focus his efforts on a follow-up study, with the possibility of publishing a second, smaller manuscript by running the same model under different conditions, while Dr Djokic focussed on running Mr Goswami’s Aranya computational model with the original plots they had in mind for submission to ACS Nano. She said, “*We left open the possibility of putting Dr Djokic's analytical model, Aranya's computational model, and the follow-up study in one paper, or placing the follow-up study in a separate paper, as we were unsure if running the same model under different conditions would generate sufficient results*”. In my judgment, by this evidence Prof Boghossian is airbrushing out of existence the computational model produced by Dr Djokic

(albeit with Mr Goswami's assistance) in R, which she simply does not mention, although it is contained within the Draft Paper as I have found.

61. Prof Boghossian's evidence is that communication between Dr Djokic and her became increasingly strained once Mr Goswami left for India in mid-July 2015. She said "*Despite this, Dr Djokic and I discussed ways forward and agreed that we would together publish two different papers. At this stage one was to be a review paper. In academia, a review paper is a publication which reviews and critically examines relevant literature... to the best of my recollection, no work was ever carried out preparing a draft. The second paper was to be a traditional research paper presenting novel work. At some point (I cannot recall precisely when) Dr Djokic and I agreed that the research paper would include his analytical model (later called the "Skew Model") which he had developed earlier, in addition to the computational model developed by Aranya [Goswami] with my assistance (later called the "Aranya Model"). For the Skew Model, Dr Djokic was able to find a solution to a special case ($\phi=0$) but was unable to find one for the other cases ($\phi\neq0$).*" Once again, in my judgment, this evidence misrepresents the true position which was that there was a plan (which was executed by production of the Draft Paper) to produce a research paper which included both Dr Djokic's analytical model for $\phi = 0$ and his computational model in R dealing with $\phi \neq 0$. I am further satisfied that it is this computational model in R which was referred to by Dr Djokic and others in the team as the "Skew model" or Skew-coordinate model", not the analytical model, and that Prof Boghossian's evidence to the contrary is unreliable. There is contemporaneous documentation in which Prof Boghossian (and others) can be seen referring to the Skew model and I am satisfied that is a reference to the computational model in R, not an analytic model.
62. Dr Djokic said that he only obtained the final numerical results for his Skew model in R (for non-zero angle wrapping) as late as the third or fourth week of August 2015, because of the time consuming nature of the simulations on the R computation platform, and that he kept Prof Boghossian regularly updated on the progress of his work by exchanging detailed emails with her throughout August 2015. I accept this evidence as the contemporaneous emails from Prof

Boghossian refer in several places to being “*on track with our projected timeline of starting to write up the results by August 15 and having a draft [of the paper] ready by September*”.

63. Prof Boghossian said that she met with Dr Djokic “*throughout the summer of 2015 to... work out how we would present our results in the research paper.*”. She describes discussing the intended figures or drawings, which was something she said they could do before the results of the model were generated. She says that she outlined in advance the figures they needed which she sketched out as schematics on the white board in her office, which Dr Djokic then generated electronically from her sketches for both the research paper and also a poster to be used for a conference in September 2015. I pause to note that, as Prof Boghossian confirmed during the trial, she has made no claim in respect of artistic copyright in those figures. The claim is limited to literary copyright.
64. In terms of the text of the Draft Paper, Prof Boghossian’s evidence is that she had used the same white board “*to provide Dr Djokic with an outline for the manuscript which needed to be written (including the manuscript structure, a description of each of the sections and transitions between the sections)*” as well as the relevant literature to be cited in the introduction. She has no images of that whiteboard.
65. Prof Boghossian does acknowledge that Dr Djokic took control of the drafting, producing the draft using LaTeX software. She said that they met a number of times as her contributions were being added while the paper was being written. She said that as drafting progressed, Dr Djokic printed off versions of the document, would hand her hard copies in person, and she would then mark-up the document by hand in her office and return the hard-copy to him so that her revisions could be typed up. She described the creation of the Draft Paper as “*an incremental process involving both our efforts and contributions*”. Mr Hicks took Prof Boghossian through the chronology of the provision to her of drafts of the Draft Paper by Dr Djokic in summer 2015, to the extent disclosed by email correspondence. It did not appear, in my judgment, that Prof Boghossian’s written evidence that she was provided with multiple versions of

the draft which she marked-up by hand and returned to Dr Djokic as her contributions stood up to cross-examination.

66. There is no dispute that Prof Boghossian was sent the Draft Paper by Dr Djokic on 26 August 2015. In cross-examination she said, "*I had seen a draft before August 26th and it was printed off and given to me... so I know there was a draft that I had but the results were not included*". That seems to suggest that she had only seen one previous draft, and her reference to the results 'not being included' seems to place the draft she was provided with in hard copy form as one before 15 August 2015, as that is the date which the contemporaneous documentation shows they intended to write up the results.
67. The contemporaneous documentation does indeed show that Dr Djokic had sent her a copy of the draft by email (in a non-editable form) on Friday 14 August 2015 with a heading "*For the meeting*". I am willing to accept that she may have printed it out for the meeting or been given a hard copy in the meeting and made manuscript comments and amendments to it, as she said she did. Prof Boghossian responded to this email on Sunday 16 August 2015, beginning "*Thank you for meeting with me on Friday. I have had more time to look over your draft and the textbook you sent and I just wanted to summarise our status and updated plan of attack to make sure that we are on the same page*". She notes that "*we don't quite have all the figures for the paper, but you did largely write up the paper*". She notes that they had had discussions on the Friday about the figures/drawings in the paper, which are not within this copyright infringement claim. She then says, "*Below are my comments on the paper*" and sets out five substantive comments which Mr Marshall accepted in closing submissions were not authorial contributions.
68. There is nothing else in the contemporaneous documentation that I have been taken to that suggests that Prof Boghossian had been given hard copies of previous drafts of the Draft Paper, apart from this one, and that she had marked them up with her contributions. This reference to "*you did largely write up the paper*" suggests that this might have been the first substantive draft she saw, but I do not put that too high. Prof Boghossian was asked why there was no reference to previous mark-ups in any of the contemporaneous documentation,

and she rhetorically asked why she would send an email to Dr Djokic in the next room telling him she had marked up a hard copy draft when they would just meet and exchange them. In response to that I note that she does appear to have sent an email on 16 August 2015 clarifying her technical and editorial comments made in a meeting on 14 August 2015. The reason she did so appears on the face of that email to be for the purposes of clarity and a paper trail.

69. Another potential concern raised in cross-examination was that in Prof Boghossian's letter before claim, her solicitors noted that proof of Prof Boghossian's "*significant contributions to the text of the Work*" can be "*supplied at the appropriate time*". The solicitors to IOP, RPC, promptly wrote back asking why, if this material was available, it was being withheld. They did not receive a response. I did not require Prof Boghossian to answer questions about this as it seemed to me that it might trespass on legal professional privilege, but it is of note that such proof was said to exist when it has never been disclosed in the course of these proceedings. It may be, however, that the solicitors were referring to the contemporaneous communications which Prof Boghossian now accepts through her counsel do not evidence authorial contributions. I do not take this any further.
70. Prof Boghossian described what she could recall in her witness statement:

"In one instance, Dr Djokic was sitting on the small round table in my office, looking over me while I was trying to fit a substantial amount of handwritten text in a margin at the bottom left corner for the first column of text and continuing to the top of the second column on the right. I remember this because I recall thinking about the inefficiency of having him sit there waiting for me to add my amendments to the manuscript (in what was very small and cramped writing), the inefficiency of me going through a manuscript in sections instead of all at once, my discomfort with my poor handwriting, and my discomfort with someone watching me make corrections when I am usually used to thinking alone and often re-revising my own text on a computer screen where I have access to the document file. I believe I also made changes to the manuscript on other days in a similar way where I was working off the printed version without him physically sitting there with me, or where I worked off a copy that I printed myself after he later sent me the electronic version as a PDF."

71. This does not provide any detail at all about the substance of the comments made in such markups. Prof Boghossian's oral evidence was that she did not have any evidence of her manuscript amendments because she did not take copies. She said that after Dr Djokic had implemented her revisions, he would then come back to her with the next printed batch which would consist of a mix of his text updated with her revisions and new draft text for her to review and revise. Prof Boghossian says that she had previously asked him for a Word file, and he told her that he could not put it in Word, so she then asked him, on 4 September 2015, for the LaTeX file so that she could put the draft in Word and make her amendments with track changes turned on. She accepted that there were no other, earlier, emails in which she can be seen requesting an electronic or editable version of any of the drafts of the Draft Paper, and she said that is because she made those requests orally to Dr Djokic directly. She accepted that he sent her the LaTeX file within 30 minutes or so of being asked for it on 4th September 2015, just as he was going abroad, and that she did not in fact make any changes to it.

72. Dr Djokic's witness statement focusses on the fact that Prof Boghossian did not have an editable version of the draft paper at any time until he sent her the LaTeX file on 4 September 2015 as evidence that she "*did not engage in any substantial manner in the preparation or composition of the manuscript in question*". I accept the Claimant's submission that this focusses on the question of who did the writing, or who 'held the pen', and we know from *Kogan v Martin* it is "*never enough*" to ask this question.

73. While Dr Djokic was on holiday, Prof Boghossian emailed Mr Goswami on 13 September 2015, saying "*Hi Aranya, thanks for a view of the code. I'm also going to go over Dejan's code (as he is on vacation these days) to make sure there everything checks out on our end as well. I found a significant error with the analytical solution, which was used to check the numerical model*". Prof Boghossian confirmed in cross-examination that this significant error was that it did not match the solution that she got in her textbook by William Deen. That is a matter which she can be seen in the contemporaneous documentation to have raised before, at a very much earlier stage of the project.

74. When Dr Djokic returned from his holiday on 23 September 2015, Prof Boghossian dismissed him from her lab. Nonetheless there continued to be some conversation and correspondence between them about the Draft Paper.

75. I have already referred to an email of 28 October 2015 from Prof Boghossian to Dr Djokic which refers back to a conversation between them on 30 September 2015, and sets out “*two primary changes that need to be made*” to the Draft Paper. I have already addressed the second change, which was rejected as unnecessary by Dr Djokic and Mr Goswami. The first suggested change was the omission of the analytical model from the Draft paper on the basis that there was a technical discrepancy between the analytical approach needed to solve the problem and the textbook he had relied on, being *H. S. Carslaw and J. C. Jaeger, “Conduction of Heat in Solids”*, 2nd Edition, Clarendon Press, Oxford, (1986), and “*the tangential relevance of this analytical solution to the scope of the paper, which focuses on a numerical solution*”.

76. Dr Djokic responded on 28 October 2015 saying that he had checked and corroborated the analytic solution with a new reference (*M. N. Ozisik, “Heat Conduction”*, 2nd Edition, John Wiley & Sons, New York USA 1993, Ch. 2). It can be seen that the Djokic Paper as published in the Journal of Nanotechnology contained references not to the textbook that Prof Boghossian relied on but to the two textbooks relied on by Dr Djokic. Since the Djokic Paper had been through a peer review process before publication, and no adverse comments have been made about the Djokic Paper’s reliance on those textbooks, I must conclude that reliance on those textbooks was not a “*significant error*” as Prof Boghossian had said at the time, during the Mediation (on Prof Deveaud’s account, which I accept), and which she continued to refer to at trial.

77. Dr Djokic’s evidence about any feedback that Prof Boghossian was able to give him is that “*Unfortunately, the Claimant was unable to assist meaningfully to my work, and the feedback provided was counterproductive, often confusing and misleading, hindering rather than advancing the research. This was likely due to [her] expertise lying outside the field of computational physics*”. Some support for this comes from Prof Boghossian’s focus in her evidence and at trial on what she considered to be two significant problems with Dr Djokic’s work

on the project, namely his alleged struggles with his computational model, and her enduring belief that there was a significant error in Dr Djokic's analytical solution, both of which I have rejected.

Discussion and Determination

78. The Claimant submits that the Court can be satisfied there was a collaboration between Prof Boghossian and Dr Djokic in furtherance of a common design because:
 - i) Dr Djokic was hired into Prof Boghossian's team at EPFL expressly to work on the computational and theoretical modelling of photophysical observations for the project that she was working on while her laboratory equipment setups were being constructed;
 - ii) The Draft Paper was a write-up of the team's work and the data the computational models had produced in relation to the interaction between a polymer and particles colliding with it, when wrapped around a single walled carbon nanotube at various angles;
 - iii) Dr Djokic accepts that he kept Prof Boghossian regularly updated on the progress of the work he was doing and that he received feedback from her on that work.
79. However, it is not sufficient for collaboration to be made out merely by a joint undertaking to create the work with a common design as to its general outline, per *Martin v Kogan*. There must also be the second limb described at paragraph [53] of that case, i.e. that the putative joint author shares in the labour of working it out. As Floyd LJ makes clear, the first task for the Court is to "*determine the nature of the co-operation*" between the putative joint authors which resulted in the creation of the work.
80. Mr Hicks took Prof Boghossian through contemporaneous emails between her, Dr Djokic and Mr Goswami in summer 2015 in which there were discussions between them about the project and the production of the Draft Paper. He put it to her that none of those contemporaneous documents evidenced authorial

contributions by her in the *Infopaq* sense, but amounted to non-authorial contributions such as technical suggestions or editorial corrections. Examples of such comments made by her in an email to Dr Djokic on 7 August 2015, for example, include “*we need to non-dimensionalise the system*”, “*could you send me the derivations for the analytical solution*” and “*we cannot call the expression an effective diffusion constant*”. Prof Boghossian in cross-examination did “*not necessarily*” accept that those were technical suggestions when Mr Hicks put that to her, but Mr Marshall in closing submissions for Prof Boghossian conceded that point, in the following exchange:

MR MARSHALL: ...in those emails she was not sending authorial drafting of the draft paper... she is doing it all by PDF manuscript mark-up.

JUDGE CLARKE: So you do not rely on the various e-mails and comments that we have seen and I have just been taken through as authorial drafting? You accept they are not?

MR MARSHALL: I rely on it as contribution. I think I would have to accept that it is not the protectable expression of ideas that you see in those emails.

JUDGE CLARKE: Thank you.

MR MARSHALL: I think it would be incredibly difficult for me to say otherwise.

...

81. Accordingly, it now appears that Prof Boghossian does not rely on such contemporaneous email correspondence as evidence that she made authorial contributions to what became the Draft Paper. She relies now only on:

- i) The initial work that she says she undertook sketching out the structure of the paper, a description of each of the sections and transitions between the sections as well as the relevant literature to be cited, on a whiteboard in her office;
- ii) The manuscript changes that she says she made to hard copy drafts of the Draft Paper printed out and provided to her by Dr Djokic; and

iii) The fact that she was named as a co-author with Dr Djokic and Mr Goswami on a conference poster that was produced in September 2015 which included verbatim quotes from the Draft Paper.

Sketching out structure of the Draft Paper on a whiteboard in her office.

82. In my judgment:

- i) The structure of the Draft Paper is a simple one, containing only a title, abstract, four sections entitled 'I. Introduction', 'II. Computational Details', 'III. Results and Discussion' and 'IV Concluding Remarks', plus acknowledgements and footnotes. It is an entirely orthodox structure for a scientific paper of its type and does not, in my judgment, allow for any room for creative freedom of expression in an *Infopaq* sense and so does not amount to an authorial contribution;
- ii) It is not obvious what creative freedom of expression exists in the transitions between the sections of the Draft Paper - Prof Boghossian has not sought to explain it in her evidence and no submissions have been made on her behalf on the point;
- iii) The relevant literature to be cited appears to be a reference to the textbook by William Deen of which she provided a copy to Dr Djokic. As already covered, he did not rely on this textbook and did not cite it in the Draft Paper, instead preferring to cite two textbooks which he found himself. It is trite law that a contribution is not relevant if it does not find itself expressed in the final work (see *Copinger and Skone James on Copyright* 19th ed. at 3-49).

83. For those reasons I am not satisfied that this amounts to an authorial contribution by Prof Boghossian.

Manuscript changes to hard copy drafts

84. I view with considerable caution Prof Boghossian's written evidence that she was provided with versions (plural) of the draft upon which she placed manuscript comments and amendments in a sort of collaborative and iterative

drafting process with Dr Djokic. The contemporaneous evidence does not support this, in my judgment, and Prof Boghossian appeared to resile somewhat from that in cross-examination as discussed, suggesting that she was sure only that she had seen a draft before the 26 August 2015 Draft Paper on which she placed manuscript amendments. I think it is more likely than not that she did place manuscript amendments on one hard copy draft predating the 26 August 2015 Draft Paper, but I cannot find on the balance of probabilities she did so more than once.

85. The difficulty for Prof Boghossian in proving authorial changes in respect of such manuscript amendments is not only that she has no record of the manuscript changes that she says she made to hard copy drafts, but she also has no memory of what those manuscript amendments amounted to (having provided no description of them in her written or oral evidence). Accordingly, she is seeking to persuade the Court that it should accept her own mere assertion that whatever manuscript comments and amendments she provided were, in fact, authorial contributions in the *Infopaq* sense when it is clear from her own oral evidence in cross-examination that she is not reliably able to identify what is an authorial contribution and what is a non-authorial contribution. That is not a criticism of Prof Boghossian – she is not an expert in UK copyright law and there is no reason for her to be. She is an expert in chemical engineering and nanobiotechnology. Similarly, as mentioned, Dr Djokic is not reliable in his assessment of what is an authorial contribution in his witness evidence and pleadings, as he wrongly focusses on “who did the writing”. However Prof Boghossian did not accept in cross-examination that comments which are clearly technical comments are non-authorial in nature as both counsel (and the court) now accept, in the circumstances, they are.
86. Whether or not Prof Boghossian is a reliable witness on the question of what is an authorial contribution and what is a non-authorial contribution would not matter very much if the elements said to have been contributed had been captured in contemporaneous documentation, or where there is other reliable evidence as to what the elements contributed are, as the Court can make its own expert assessment of whether or not those elements express the contributor’s

own intellectual creation in accordance with the *Infopaq* test. If they do, they are authorial, if they do not, they are not. But in this case, given there is no evidence about the manuscript changes and comments Prof Boghossian is said to have made on the hard copy drafts provided to her by Dr Djokic, the Court cannot carry out that necessary assessment. Such evidence as can be inferred from the contemporaneous documentation appears to suggest (by Prof Boghossian's email of 16 August 2015, for example) that the comments she may have made in manuscript on 14 August 2015 were merely technical or editorial comments. It is not sufficient for Prof Boghossian to submit, as Mr Marshall did on her behalf in closing, that "*there is no contemporaneous document to show that ...pages that were produced were not reviewed by her, were not marked up in the way she said she was doing in PDF printed copy*".

87. That assessment is particularly necessary in a case like this, in my judgment, because in relation to scientific papers, per *Wright v BTC Core*, the room for creative freedom of expression in an *Infopaq* sense may be limited or non-existent.
88. Finally, Mr Marshall in closing drew my attention to one of the changes made by Dr Djokic to the Djokic Paper from the Draft Paper, in response to academic review of the Draft Paper, being the deletion of text relating to the effective diffusion constant. He submits that results from a contribution by Prof Boghossian "*in an authorial way that led to this text being deleted*". Once again, a contribution is not relevant if it is not expressed in the final work so I reject this submission.

September 2015 conference poster

89. Prof Boghossian submits that there are elements of the text of this poster, which was produced for presentation of the findings of the project to the public at large, which amount to a verbatim reproduction of what was set out in the introduction to the Draft Paper and I accept that is the case. I also accept there is reproduction of some of the figures, but once again I am not concerned with artistic copyright. This poster names Dr Djokic, Mr Goswami and Prof Boghossian (and others)

as authors. She submits that the Court can be satisfied that she was a joint author of that text because by doing so, Dr Djokic has told the world that she is.

90. I am not with her on this point. First, the burden remains on Prof Boghossian to satisfy me that she is a joint author of the literary work that is the Draft Paper in accordance with the legal principles I have set out. Second, Prof Deveaud's evidence is that it is "*standard practice*" in academia for the main listed author of a draft paper to produce a draft with a proposed list of co-authors, who are then only actually named as co-authors if they input into the draft. He said usually, the main author is the first on the list and the professor (as the head of the lab where the work is carried out) is named as the last co-author and provides corrections and supervision over the draft paper. However if they do not ultimately provide that input, they will not be named as co-authors. I accept this evidence which accords with Dr Djokic's evidence about why he named Prof Boghossian as an author on the Draft Paper but removed her from the list of authors on the Modified Paper and the Djokic Paper, and I accept that practice applies to publications such as the conference poster too. Accordingly I am satisfied I cannot draw any inferences of joint authorship of the poster or the Draft Paper merely by the presence of Prof Boghossian's name on a list of authors of this poster.

Conclusion

91. For those reasons, Prof Boghossian has not satisfied me on the balance of probabilities that she is joint author of the Draft Paper, as she has not satisfied me that she has contributed to the Draft Paper in an authorial way per *Infopaq*. Accordingly her claim in copyright infringement will be dismissed.

92. Consequential to that, I will dismiss IOPs Part 20 claim for an indemnity against Dr Djokic.

93. In case I am wrong on the question of joint authorship, I will go on to consider the question of whether Prof Boghossian consented to the publication of the Djokic Paper by the agreement reached at the Mediation

E. ISSUE 2 – DID PROF BOGHOSSIAN CONSENT PURSUANT TO THE MEDIATION?

Evidence

94. On 15 January 2016, Prof Boghossian wrote to Dr Djokic asserting that Dr Djokic was not permitted to publish anything resulting from the time he worked in the EPFL laboratory, saying:

“You are free to publish whatever paper you choose on your own so long as this paper did not use any of the LNB intellectual or financial resources, property or ideas as per publication regulations. This includes: contributions from Aranya, who was paid using LNB funds during his time here, intellectual or physical contributions from you while you were receiving LNB funds, computing resources funded by the LNB and any ideas and approaches that were proposed and or developed at the LNB. The latter point includes any references in the paper to calculating quantum yield of polymer wrapped nanotubes, a project and approach I had assigned to Aranya when he joined the lab.”

95. Dr Djokic filed an ethical complaint against Prof Boghossian with EPFL on 18 January 2016. As part of his complaint, Dr Djokic filed the Modified Paper, which he claimed was “*completely modified*” from the Draft paper, which he intended to publish. As previously mentioned, both Prof Boghossian and IOP agree that it is not a completely modified paper, it is a slightly updated version of the Draft Paper and almost identical to the Djokic Paper.

96. During the mediation, Ms Killias and Prof Deveaud met with Prof Boghossian on 19 April 2016, and then with Dr Djokic separately, before a final meeting with all of them. It is Prof Boghossian's evidence that:

- i) She was never provided with a copy of ‘File 4’ (the Modified Paper) and instead was under the impression that Dr Djokic had prepared a new, completely modified paper covering his ‘Skew model’, as she defines it in her witness statement, namely an analytical solution where $\phi = 0$;
- ii) Those present at the meeting did not fully understand the distinction between the draft Aranya Paper (which her team intended to submit to a

journal called ACS Nano), the intended independent paper based on Dr Djokic's own model, and the Draft Paper;

- iii) The notes suggest that Prof Deveaud and Ms Killias were told that she was objecting to being an author on the Draft Paper based upon an error she had noted, which she assumes relates to her email of 29 October 2015 referring to a "*technical discrepancy*" in the analytical solution where $\phi = 0$, which is not correct;
- iv) She was not shown the Modified Paper until January 2019 when details of Dr Djokic's March 2016 ethics complaint were provided to her, and so it was not until then that she realised that the Modified Paper was not a "*completely modified*" paper but a very close version of the Draft Paper, with a modified title and author names removed save that of Dr Djokic and Mr Goswami;
- v) She assumes that she was not provided with File 4 earlier as she would have immediately alerted the ethics committee that File 4 was not his own work;
- vi) She made clear to Prof Deveaud and Ms Killias that she wished to reach agreement on publication of Dr Djokic's new paper which was his own independent work, to ensure that it was published after her and Mr Goswami's Aranya Paper.

97. The only record of the agreement reached at Mediation was an email sent by Ms Killias to Prof Boghossian and Dr Djokic, copying in Prof Deveaud, on 20 April 2016. This said:

Dear Ardemis, Dear Dejan,

After have heard you both separately, I can confirm that the last draft of the paper called ?Anraya Model? will be sent to Dejan in about 4 weeks, in order for him to make his comments/corrections. The time to review the draft will max 3 weeks. If this is done correctly and smoothly, Djokik Dejan will figure in the author list.

The paper called ?Skew Model? may be published, on two conditions 1) that prof. Boghossian is not an author and 2) that the paper ?Anraya Model? has been accepted in a journal. A lap time of max 14 months is to be foreseen.

98. Prof Boghossian's evidence is that the terms of the agreement reached were:

- i) That Dr Djokic was to be included as a joint author on the Aranya Paper if he made revisions to it after receiving the draft;
- ii) He would be able to publish his independent work on his analytical model where $\phi = 0$ (plus any further material based on his own independent work pursued in the time after he left her team in October 2015) after the acceptance of the Aranya Paper by a journal;
- iii) She was not to be an author of Dr Djokic's paper;
- iv) Prof Deveaud and Ms Killias proposed a 12-month period for fulfilment of the agreement, which was later extended to a proposal of 14 months, but she said that she could not provide any guarantees that the Aranya Paper would be published in that time frame. Accordingly, the agreement was that after 14 months, they would re-evaluate the situation, which is reflected in Ms Killias in her email setting out the agreement that 14 months "*is to be foreseen*";
- v) In response to Ms Killias' email, she responded saying "*I am not sure if this is already implied since I am not an author on the paper, but regarding the "Skew model" paper, I would like to clarify that the affiliation to the Laboratory of Nanobiotechnology should not be included on the article*". Ms Killias agreed to this.

99. Points (i), (iii) and (v) are agreed by Prof Deveaud and Dr Djokic. Points (ii) and (iv) are disputed. They also do not appear to be agreed by Ms Killias, given what happened 14 months after the Mediation.

100. Prof Deveaud's evidence is that:

“My understanding at the time (following various discussions with Dr Djokic and Professor Boghossian as explained in further detail... below) was that the Draft Paper was entirely the work of Dr Djokic and his co-author Aranya Goswami, whereas Professor Boghossian had no input in the Draft Paper (and this remains my understanding now).”

101. In cross-examination he said that this understanding was based “*On my getting the Draft Paper, the modified draft, the discussion between myself, Susan Killias and Djokic and the subsequent discussions and mediation meeting with Prof Boghossian*”. He said several times that Prof Boghossian had expressed very clearly that she was not willing to be a co-author on the Draft Paper.
102. Prof Deveaud says that he understood Dr Djokic’s priority in the Mediation was to reach an agreement with Prof Boghossian in relation to the publication of the Draft Paper, and in his second meeting with Prof Deveaud and Ms Killias, Dr Djokic said that he did not mind whether Prof Boghossian was listed as an author of the Draft Paper. Prof Deveaud says he recalls Prof Boghossian suggesting that she would agree to Dr Djokic publishing the Draft Paper as long as she could publish her own paper on the topic of quantum yield in polymer wrapped single walled carbon nanotubes first. He said that he considered at the time it was “*quite an unusual and unreasonable request*” but he did not voice this, as the idea was to reach an amicable agreement. Prof Deveaud says he remembered what was discussed the final meeting at which the agreement was reached, attended by him, Ms Killias, Dr Djokic and Prof Boghossian “*very well*” and he reiterated this in his oral evidence. He said:
 - i) Prof Boghossian was clear that she did not want to be credited as an author nor to provide any corrections to the Draft Paper;
 - ii) She agreed that Dr Djokic could publish the Draft Paper, provided she could publish her own paper on the topic first;
 - iii) Dr Djokic agreed to this, provided that a maximum time limit was imposed after which he could proceed with publication of his paper, regardless of whether Prof Boghossian had published hers;

- iv) There was a long discussion over this maximum time limit, and ultimately 14 months from 20 April 2016 was agreed;
- v) If she had not published her article within that time, Dr Djokic would be free to publish his, and if she published her article sooner Dr Djokic could go ahead and publish his own and didn't have to wait for the 14-month time period to expire;
- vi) Prof Deveaud did not think at the time, and still does not think, that was a fair outcome, given that Dr Djokic's paper was ready for publication. He did not think the 14-month delay was academically justifiable. However, he said "*I was pleased that we were able to reach a resolution that both parties seemed happy with*".

103. He said:

“I remember leaving the meeting thinking that we had reached a simple and clear agreement... which was understood by all. For this reason, I did not feel the need to record the agreement in a signed document. However, with hindsight, we clearly should have done so, but as I say, at the time I thought the terms of the agreement were obvious and unmistakeably understood by all involved. My thoughts at the time were that it would not take Professor Boghossian more than 14 months to publish her paper anyway, so I certainly didn't anticipate there being any issues with Dr Djokic publishing after the expiry of the 14-month period or further disagreements arising in this respect.”

104. Prof Boghossian's position, that the agreement was after 14 months had passed they would revisit the position, was put to him in cross-examination and he said “*Absolutely not. The 14-month period was the maximum delay after which Djokic would be allowed to publish his draft, whatever would be the situation of the other paper prepared by Prof Boghossian and her group.*” He described himself as “*very confident*” that the agreement was “*after 14 months, whatever happens to the Aranya paper, Djokic is allowed to send out his paper for publication*”.

105. It was put to Prof Deveaud in cross-examination by Mr Marshall that Prof Boghossian was not willing to be named as an author on the paper that Dr Djokic

intended to publish, because the paper that was under discussion was believed by her to be a ‘completely modified draft’, in Dr Djokic’s own wording. Prof Deveaud disagreed. He initially said, “*This was agreed because Professor Boghossian was not willing to provide correction to the draft paper*” and later “*To my understanding, she was not willing to be a co-author on that paper because she was saying that this paper contains mistakes*”. When pressed, he said, “*My understanding was that Professor Boghossian knew perfectly well what Djokic was willing to publish. In the same way you see in this discussion, Djokic is requesting to see the draft of the Aranya paper to be able to modify it before it is published, Professor Boghossian does not want to have her name on the paper, and she has to know what is in the paper, or otherwise I do not understand what is the meaning of this mediation. You agree that Djokic may publish something you do not know anything about? This I do not understand.*”

106. On 30 September 2016, Dr Djokic wrote to Ms Killias and Prof Deveaud noting that he had not been sent the draft of the Aranya Paper for his comments, despite being told in April that he would receive it in about 4 weeks, and 6 months had elapsed since then. He asked for a status update on that paper. He also said “*In addition, the lap period for the second paper was estimated as 14 months at longest. Could you please let me know if the elapsed period of about 6 months is included in those 14 months?*” Ms Killias copied this to Prof Boghossian who did not take any issue with the reference to “*14 months at longest*” in her response explaining the reasons for the delay in getting the draft to Dr Djokic. She did eventually provide him with a draft of the Aranya paper in October 2016.
107. Prof Boghossian submitted the Aranya paper, then entitled “*Towards Engineering SMaRT Nanosensors: Effects of Helical Wrapping on Single-Walled Carbon Nanotube Photoluminescence*” to ACS Nano, a peer-reviewed journal, on 28 December 2016. The lead authors were A. Chiappino-Pepe and V Zubkovs, with Prof Boghossian and Dr Djokic also named as authors. It was rejected on 19 January 2017 by the associate editor in terms that reviewers “*...had expressed serious reservations about this work that I do not believe could be addressed through a standard major revision*”. The authors amended

and resubmitted the paper to ACS Nano several times thereafter over the course of a year or more, but it was ultimately rejected for publication.

108. On 9 July 2017 Dr Djokic emailed Ms Killias and Prof Deveaud for permission to publish the Draft Paper as 14 months had passed since the Mediation and to his knowledge the Aranya Paper had not yet been published. He asked how he should reference his position at EPFL given that he had agreed that Prof Boghossian's lab should not be affiliated with the Draft Paper, and Ms Killias and Prof Deveaud agreed with Dr Djokic that he should affiliate it with EPFL's Institute of Chemical Sciences and Engineering instead.
109. Ms Killias contacted Prof Deveaud for his views on whether Dr Djokic should be permitted to publish, and his evidence is that she also spoke to Mr Maillard (who at that time was the Secretary General of EPFL), although he was not involved in that conversation. He says that since: (i) Prof Boghossian had not published her Aranya Paper in the 14 months following Mediation; and (ii) the Draft Paper did not credit Prof Boghossian or her lab, his view and that of Ms Killias was that the conditions of the agreement reached at Mediation had been met. Accordingly Ms Killias told Dr Djokic and Prof Boghossian by email of 25 July 2017 that:

“Considering the different arguments i.e. that fourteen months have passed, that the models are different, that the date of submission is relevant in case of a problem, we acknowledge that the conditions are met for you to start your submission for publication”

110. Prof Boghossian did not object to this decision at the time. She says that is because she assumed that what he was going to publish was a completely modified draft that did not incorporate any of her own work. Dr Djokic submitted the Djokic Paper to IOP on 20 August 2017.
111. It was only after the Djokic Paper was published, albeit immediately after it was published, that Prof Boghossian raised concerns with, *inter alia*, EPFL by email to Prof Deveaud (at that time no longer working at EPFL but still receiving emails to his EPFL email address) and Ms Killias on 3 October 2017. Prof Deveaud's evidence is that Prof Boghossian's first objection was that her

Aranya Paper hadn't yet been published, so the publication of the Djokic paper would negatively impact the review process for the Aranya Paper, as it would no longer be considered novel.

Discussion and determination

112. Prof Boghossian's case on the Mediation agreement has had to deal with the facts that (i) Ms Killias' email noting the agreement reached, deficient as it is in many ways, makes clear that the Mediation was about permission for Dr Djokic to publish the paper referred to as his "Skew model"; and (ii) in Prof Boghossian's response to that email in which she asked Ms Killias to ensure that he did not affiliate his paper with the LNB, she also referred to it as the "Skew model" paper of which, she said, she was "*not an author*".
113. Her answer has been that the "Skew model" was a reference to Dr Djokic's analytic model where $\phi = 0$, and not his computational model in R (which was in any event the Aranya model developed in MATLAB but merely translated into R), that she did not know that what he proposed to publish was essentially his Draft Paper as Dr Djokic did not send her the Modified Paper but described it as "completely modified", and so she assumed that it only covered the analytic model and entirely new independent work carried out since he had left the LNB. However I prefer Prof Deveaud's evidence, which I found compelling, that in the meetings that he and Ms Killias had with her alone and with Dr Djokic, Prof Boghossian knew 'perfectly well' that what they were discussing was Dr Djokic's request to publish the Draft Paper.
114. In addition it is simply not plausible, in my judgment, that Prof Boghossian would have entered into a Mediation of this type, relating to publication of a paper against a background of allegations of breach of ethics and academic plagiarism, without asking to see it or otherwise ensuring her understanding of what it contained was correct. I accept Prof Deveaud's evidence that he had a copy of the Modified Paper on the table during the mediation, and that she did not ask to see it.

115. Although Prof Boghossian's evidence is that those present at the meeting “*did not fully understand the distinction between the draft Aranya Paper, the intended independent paper based on Dr Djokic's own [analytic] model, and the Draft Paper*” it is not clear how she understood that, and if so, why she did not seek to explain those distinctions as she understood them. If she had done so in the terms in which she now says was her understanding, I have no doubt Prof Deveaud would have corrected her and showed her the Modified Paper.

116. However I am satisfied that was not her understanding at the time. I have found that Dr Djokic and the other team members including her referred to his computational model in R either in those terms or as the ‘Skew model’ or ‘Skew-coordinate model’, to distinguish it from the Aranya model which was separately developed and to be published in a paper in ACS Nano. I am satisfied that her evidence that she believed at the time of the Mediation that was a reference to the analytic model only is not correct.

117. I also do not accept Prof Boghossian's evidence that the agreement reached was that after 14 months, the parties would re-evaluate the situation. She submits that I should accept it as that is what, in fact happened – after 14 months, Dr Djokic asked if he could publish, Ms Killias and others at EPFL consulted, and gave him permission to do so. However I prefer the evidence of Prof Deveaud: that it was clear that what was being discussed was a maximum time limit; that there was a long discussion about it with various positions being put forward; that the 14 months reached was not one he thought was fair but he did not disturb it as it was agreed by both parties; and that Dr Djokic's return to Ms Killias to check he was free to publish amounted to a matter of professional courtesy rather than any indication that it was not a deadline. That is supported, in my judgment, by Prof Boghossian's failure to object to Ms Killias' decision to allow publication by Dr Djokic of 25 July 2017 in circumstances where I am satisfied that she knew that what was being discussed was not merely publication of the analytical model plus independent work, but the ‘Skew model paper’, including the computational model in R.

118. Accordingly, even if I had found that Prof Boghossian was a joint author of the Draft Paper, I would have found that as a result of the agreement she reached

with Dr Djokic in Mediation, she consented to IOP carrying out what it admits are acts restricted by copyright when it published the Djokic Paper.

F. SUMMARY

119. Prof Boghossian has failed to satisfy me that she is a joint author of the Draft Paper. Accordingly, the claim for copyright infringement is dismissed.

120. Consequent to that, the Part 20 Claim is dismissed.