

# BRADLEY J KAVANAGH

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CONTACT DETAILS	<a href="#">GRAPPA Institute</a> University of Amsterdam Science Park 904 1098 XH Amsterdam The Netherlands	TEL +33 (0) 6 65 10 67 37 EMAIL <a href="mailto:b.j.kavanagh@uva.nl">b.j.kavanagh@uva.nl</a> WEB <a href="http://bradkav.net">bradkav.net</a>  ORCID ID <a href="https://orcid.org/0000-0002-3634-4679">0000-0002-3634-4679</a>
DATE OF BIRTH	15th March 1989	NATIONALITY British
ACADEMIC HISTORY	<p><b>September 2017 - September 2020: GRAPPA, University of Amsterdam</b> GRAPPA Post-doctoral Position Supervisor: Dr. Gianfranco Bertone</p> <p><b>October 2014 - August 2017: LPTHE, Paris &amp; IPhT, CEA/Saclay</b> NewDark ERC Post-doctoral Fellowship Supervisor: Dr. Marco Cirelli</p> <p><b>September 2011 - September 2014: University of Nottingham, UK</b> PhD, Particle Theory Group PhD Thesis: <a href="#">“Confronting Astrophysical Uncertainties in the Direct Detection of Dark Matter”</a> Supervisor: Dr. Anne M. Green</p> <p><b>September 2010 - June 2011: University of Cambridge, UK</b> Master of Science (MSci): Theoretical Physics Master’s thesis: “Wavepacket scattering simulations using GPGPU” Modules in quantum field theory, particle astrophysics and cosmology.</p> <p><b>June 2010 - September 2010: University of York, UK</b> Transit Scholarship, York Centre for Complex Systems Analysis (YCCSA) Project: “Voter models on complex and dynamic networks” Supervisor: Dr. Jamie Wood</p> <p><b>September 2007 - June 2010: University of Cambridge, UK</b> Bachelor of Arts (BA): Natural Sciences (Physical) First class honours degree (ranked 13 out of 578).</p>	
RESEARCH INTERESTS	My main research interest is <i>particle dark matter</i> , including both how it can emerge from theories of physics beyond the Standard Model and how it can be probed experimentally. My research to date has focused primarily on the direct detection of particle dark matter in underground laboratory experiments. I have previously demonstrated how the mass and interaction cross section of the dark matter particle can be measured in upcoming experiments in spite its unknown astrophysical distribution. My current focus is on how to classify and distinguish different models of dark matter (using direct detection, as well as complimentary information from indirect and collider searches). This will help us understand which experimental approaches will be most fruitful in pinning down the nature and identity of dark matter even further.	
SELECTED TALKS ( <a href="#">SLIDES ONLINE</a> )	<p>DM Signatures Workshop, CP3-Origins, Odense, Denmark, 12 June 2017 Talk Title: ‘<i>Signatures of Dark Matter Earth-Scattering: from sub-GeV particles to WIMPzillas</i>’</p> <p>IPNL Seminar, Institut de Physique Nuclaire de Lyon, Lyon, 20 January 2017 Seminar Title: ‘<i>Directional Dark Matter Detection: a window into DM astrophysics</i>’</p>	

*and particle physics*

Phenomenology Overview, Journe Matire Sombre France, APC, Paris, 1 December 2016

Talk Title: '*Dark Matter 'Pheno' - Signatures in direct detection experiments*'

GRAPPA Institute Seminar, Amsterdam, Netherlands, 10 October 2016

Seminar Title: '*Dark Matter Particle Astronomy*'

Particle Physics & Cosmology Seminar, KCL, London, UK, 13 June 2016

Seminar Title: '*You Better Run - Connecting low-energy Dark Matter searches with high-energy physics*'

CYGNUS2015 Workshop on directional detection, LA, USA, 2 - 4 Jun 2015

Talk titles: '*New directional signatures from non-relativistic effective field theory*' and '*Discretising the velocity distribution for directional dark matter experiments*'

AWARDS & PRIZES [Institute of Physics \(IOP\) Astroparticle Physics Thesis prize](#), 2016

2nd Place, Physics Postgraduate Poster Competition, University of Nottingham, UK, 6 February 2013

Foundation Scholarship (for achieving a First class mark in all papers), University of Cambridge, UK, 2009, 2010, 2011

David Thompson Scholarship (for achieving a First class mark), University of Cambridge, UK, 2008

COMPUTER SKILLS *Languages & Software:* C/C++, CUDA (GPGPU programming), Fortran, Python, MATLAB, Mathematica, Git, high-performance computing.  
*Operating Systems:* Windows, Linux, Mac OS X.

OTHER RELEVANT EXPERIENCE Referee for Journal of Cosmology and Astroparticle Physics.

Coordinating and editing publication of outreach article on the NewDark research group: '[Dark is the new black](#)' (Scientia, 2016).

Supervising Erasmus Student Project (Elena Pinetti, University of Turin, 2016).

Organiser of NewDark mini-workshops: '[LCDM, Modified Gravity or new Dark Matter models?](#)' (May 2017), '[Dark Matter and Stars](#)' (June 2016) and '[Axion Theory and Searches](#)' (June 2015) in Paris, France.

Organising Committee member for [Young Experimentalists and Theorists Institute \(YETI\) 2014](#), Durham, UK.

Giving short outreach talks at undergraduate physics open days at University of Nottingham (2012, 2013) and at University of Cambridge Part III research day (2012).

Organised and chaired student journal club within Particle Theory Group at University of Nottingham.

Marking of undergraduate computing coursework, as well as demonstrating in computing practical classes at University of Nottingham.