

An issue dedicated to the Ψ k Volker Heine Young Investigator Award^{*}

Angel Rubio^{1,a}, Risto Nieminen², and Volker Heine³

¹ Max Planck Institute for the Structure and Dynamics of Matter, Luruper Chaussee 149, Geb. 99 (CFEL) 22761 Hamburg, Germany

² Aalto University School of Science, Department of Applied Physics, P.O.Box 11100, 00076 Aalto, Finland

³ TCM group, Cavendish Lab, J.J. Thomson Ave, CB3 0HE Cambridge, UK

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The Ψ k Conference, which takes place every five years, is the premier global event in the broad field of electronic-structure theory and computation. This conference draws more than one thousand participants from all over the world, and it provides a broad survey on recent advances in electronic-structure methods and applications to a wide range of fields, from theoretical condensed matter physics, quantum chemistry, thermodynamics, and statistical mechanics to applications encompassing inorganic, organic and bio-materials in a whole range of diverse scientific, engineering, and industrial endeavors. One of the highlights of the conference is the Volker Heine Young Investigator Award contest. The contest participants are required to have received their Ph.D. within the previous five years. They are asked to submit an abstract that describes their recent work, together with a CV and recommendation letters. The chosen finalists present their research at the conference, and a jury selects the winners.

The Volker Heine Award contest also takes place halfway between each Ψ k conference, during the Ψ k Get-Together at the DPG Spring Meeting in Germany. The quality of the applicant research has been excellent. The Volker Heine Award contest has been held three times so far, at the Ψ k conference in Berlin 2010, at the 2013 March Meeting of the German Physical Society and most recently at the Ψ k 2015 Conference in San Sebastian. The Ψ k Network hopes to continue conferring this award with the cooperation of the German Physical Society during the years that fall between Ψ k conferences. The Volker Heine Award is now funded by the general Ψ k income that is contributed by approximately 25 research groups and organizations across Europe.

The quality of the 36 applications has again been very impressive this year, making it difficult for the Ψ k Committee to choose the five finalists, whose talks introduced the following topics:

Marco Bernardi “Ultrafast Hot Carrier Dynamics in Materials from Ab Initio Calculations” [1].

Fabio Caruso “Comprehensive material modelling within the GW approximation” [2].

Ion Errea “Efficient ab initio calculation of anharmonic properties in solid” [3].

Johanna Fuks “Time-Resolved Spectroscopy in Time Dependent Density Functional Theory: An Exact Condition” [4].

Andreas Grüneis “Expanding the scope of wave function based methods for solids” [5].

The five conference plenary speakers and three of the Ψ k Trustees chose the final 2015 award winner, Marco Bernardi, after they attended the finalist talks. This special issue covers the fascinating areas of research that are moving forward through the efforts of these young researchers.

The Ψ k award for research excellence

by Volker Heine

Since this award only dates from 2010, it may be helpful to say a few words about it. In 2009 I received a modest legacy from an ex-student from Singapore who had done her Ph.D. in the research group in Cambridge UK in the 1970s and had died relatively young. I divided the money among four projects which I believe she would have been happy to support, and it occurred to me that starting the Ψ k Young Investigator Award at the Ψ k2010 Conference would be one of them.

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^a e-mail: angel.rubio@mpsd.mpg.de

The Award is intended to young researchers, defined as not more than five years from their PhD degrees. This is a long enough period for the applicants to submit original work of their own, not being the work of their PhD supervisor, but short enough that they still count as ‘young’. Most medals and prizes in academia are given by men in their mature years, which is nice but somewhat superfluous. However, receiving an award can be a real help to further the career of a young scientist.

The amount of money given to the Award winner is quite small, and that to the other four runners-up even smaller, but they can add the achievement to their Curriculum Vitae and they receive the exposure of an invited talk at what is a prestigious international conference. Ψk exists as an organisation to support researchers in its field across the whole of Europe, including those who may be in isolated places or come from such. This Young Investigator Award is therefore something which I feel particularly happy to have initiated.

The Award is open to young researchers anywhere in the world. Ψk is a European research network (and does not wish to organise the whole world!), but in regard to applicants for the Award it is in fact impossible to define a ‘European’. Many of our graduate students and

post-doctoral researchers come from all around the world, and conversely other students who were born and studied in Europe then move further away for their Ph.D. or first research job. Ψk has always had friendly active cooperation with colleagues around the world, and is happy to contribute this Award in some sense to what Ole Andersen has called ‘the whole family’. Indeed this close connection across the continents is very meaningful to me, having lived through World War 2, then in the time of the Cold War (with family living on both sides in both cases), and now in a period of xenophobia and continuing violence. In this context, I see Ψk ’s active scientific cooperation as a small positive contribution to rationality and peace in the world.

References

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