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Dated:	Our ref.:	Your letter dated:	Your ref.:
2016-05-26			

Letter of support for the further development of kwant

Dear Dr. Xavier Waintal,

It is my pleasure to support the further development of kwant.

Kwant is a versatile Python code for the numerical calculation of the scattering properties of coherent quantum conductors. Using the high-level language Python, kwant is easy to use, yet it is powerful, fast, and flexible. The code can be used to model a broad range of systems, including magnetic and superconducting devices. Disorder and spin-orbit interaction are also straightforward to include. From kwant, we can extract essential information such as the transmission and reflection coefficients determine the quantum transport properties, but also out-of-equilibrium density and other properties. Furthermore, kwant can be used to calculate the transport properties of many-terminal devices.

Recently, one of my Master students, Eirik Løhaugen Fjærbu, used kwant extensively in his thesis "Magnetization dissipation in bulk ferromagnets and ferromagnetic quantum dots". He successfully used kwant to study the effect of spin-orbit interaction on the magnetization dissipation in small ferromagnetic particles. My group has also earlier fruitfully used the earlier version of kwant, knit, in two publications:

1) H. Haugen, A. Brataas, X. Waintal, and G. E. W. Bauer, *Focused crossed Andreev reflection*, EPL 93, 67005 (2011).
2) H. Haugen, D. Huertas-Hernando, A. Brataas, and X. Waintal, *Crossed Andreev reflection versus electron transfer in three-terminal graphene devices*, Phys. Rev. B 81, 174523 (201).

The code was able to rapidly to test interesting analytical hypothesis on realistic models. This is one of the advantages of kwant, the possibility for groups like our that focuses on analytical theories to quickly use a powerful and intuitive code on relevant problems about quantum transport instead on code development.

I fully support the further development of kwant for a wider range of spintronics related phenomena.

Yours sincerely, Arne Brataas

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