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To whom it may concern

Support letter for the KWANT project



I am a researcher working at the “Institut de Physique et Chimie des Matériaux de Strasbourg” which is supported by the CNRS and the Université de Strasbourg. Our team, composed of three staff members and presently two postdocs as well as three PhD students, focuses on the theory of mesoscopic systems using phenomenological analytical approaches that are often combined with numerics for model systems. One of our main subjects concerns quantum transport, and presently in particular the theory of Scanning Gate Microscopy. In this research area we work in close collaboration with experimentalists and consider the dependence of the quantum conductance of a nanostructured system on the position of an additional local potential that is induced by the scanning gate.

After having used our own implementation of a recursive Green function algorithm for numerical calculations of tight-binding systems, we have switched to the KWANT package about two years ago. The main reasons were the great versatility and the ease in defining arbitrarily shaped systems via a very accessible python interface, and the readily available possibility to compute not only the conductance but also other quantities like the full scattering matrix between the leads and scattering wave-functions. We were impressed that these comfortable features were accompanied by very competitive computational performance.

The KWANT package quickly became an important and extremely useful tool in our research work. It is at present used by three members of our team on a very regular and almost daily basis. The obtained results are part of our research that is published in international peer-reviewed scientific journals.

In summary, I consider the KWANT package a very useful contribution to the advancement of science since it greatly facilitates numerical approaches to quantum transport in tight-binding lattices. A further development of the package implementing new features will be most welcome. I strongly support the KWANT project and look forward to its evolution.

Strasbourg, May 30, 2016



Dietmar Weinmann