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To the Research Council of Norway

Dear Research Council

I was asked to review the application for Center of Excellence in Applied Mathematics and Computational Science. Project Leader Annette Meidell, Høegskolen i Narvik.

Homogenization theory is a popular topic in applied math. It shows a regular way to simplify the description of heterogeneous objects, obtaining a simplified model that describes significant features of an object and neglect insignificant details. Stochastic homogenization adds tools that allow to treat disordered systems from natural rocks to turbulent flows to oil depositories, simplifying them and emphasizing their significant features. The role of different homogenization approaches will definitely grow and new computational opportunities will call for new approaches to the theory. This area is worth funding, and it is funded by NSF, DOE, and DARPA in the United States.

The group of researchers in Narvik is very visible in the complicated landscape of homogenization groups. Their publication record clearly speak of their reputation, and the names of the colleagues are known and respected in applied math community. I visited the group during the Narvik Midnight Sun conference that they organized several years ago and I attest to the synergistic spirit and effectiveness of the group.

I think that the group really needs an opportunity to attract and support good students, both local and international. The far North location of Narvik makes this challenging, and I hope that the funding for the Center of Excellence will help. I am sure that the students and young researcher will receive an excellent training there, and I hope that could apply their knowledge to local industries.

A collaboration is the other problem that could be eased with the Center of Excellence funding. The isolated geographical location of Narvik makes travels more expensive and long, and it is very important that the funds would be available to travel to other scientific centers and to invite lecturers and collaborators to Narvik. I must say that the colleagues in Narvik are already active internationally, as it is evident from the list of conferences they attend and from a number of cooperative research they conduct. This initiative deserves a support, in my opinion. I expect that Annette Meidell and her colleagues will attract leading specialist to visit Narvik and start new joint research projects.

In summary, I think that this is an excellent project that balances teaching, student support, research, and collaboration, and I imagine that this project would be important for the whole University and for the visibility of the North region of Norway. Based on this, I enthusiastically recommend to fund the suggested Center of Excellence in Applied Mathematics and Computational Science in Narvik.

Thank you for the consideration.

Sincerely yours,

Andrej Cherkaev  
Professor of Mathematics