

To Whom It May Concern

The Minnesota Nano Center (MNC) is pleased to be able to provide access to the equipment needed to carry out the proposed work. As a node of the NSF National Nano Infrastructure Network (NNCI), the MNC maintains and operates a broad suite of fabrication equipment including optical and direct write e-beam lithography, nanoimprint, focused ion beam, thin film sputtering, thermal and electron beam evaporation, chemical vapor deposition, rapid thermal and conventional furnace annealing, and a wide variety of plasma etch tools. New additions include plasma-enhanced atomic layer deposition for metals and nitrides, and a high density plasma chemical vapor deposition system for controlled-stress deposition of thin films at near room temperature.

MNC's tools are located in two clean rooms: a 5000 square foot facility in Keller Hall, and a 10,000 square foot facility recently opened in the new Physics and Nano Building across the street from Keller. This new facility also includes labs to support work in bio-nano and nanomaterials. The Minnesota Nano Center is open 24 hours a day, seven days a week. The lab also offers extensive user-support and training on the equipment available in our facility, including introductory lab training every two weeks.

MNC supports more than 350 users a year, including a substantial number from industry. By combining the profit on industry usage with both State and Federal support, MNC is able to provide access to these systems at a substantially subsidized rate to all academic users. MNC has a staff of approximately thirteen technical professionals. Our staff has more than 400 person-years of experience to help to keep both the cleanroom and the equipment in good working order. The researchers involved in this project can use these systems to make the structures described in the proposal.

Regards,

Stephen A. Campbell

Stephen A. Campbell
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Penrose Professor of Nanotechnology