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# McIntosh Champion Discovery-Based Student Learning Using the Haystack Radio Telescope

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**[McIntosh Champions Discovery-Based Student Learning Using the Haystack Radio Telescope](#)**

*Summary: Professor of Physics Gordon McIntosh is attempting to resurrect remote access to this valuable resource.*

MORRIS, Minnesota (July 21, 2016)—Professor of Physics Gordon McIntosh received a \$32,505 subaward from the Massachusetts Institute of Technology for “Discovery-Based Student Learning with the Haystack 37-m Radio Telescope.” McIntosh is attempting to provide students remote access to this valuable resource, located in western Massachusetts.

McIntosh and his students utilized the Haystack’s remote observing capacity —controlling the telescope and taking data— from 2000 until 2006, but lost this ability when the Haystack went down for an extensive upgrade. McIntosh has been attempting to reestablish its remote observing capabilities since 2014 and will use his award to continue this work while developing related learning activities for use at Morris and elsewhere.

“We can do publishable science with that telescope,” says McIntosh. “We can take data, analyze the data, and publish the results when its remote observing capacity is available.”

Once remote access is reestablished, McIntosh also hopes to create an SiO maser database. These naturally occurring forms of radiation in the microwave range have been the focus of his academic life’s work, and he believes their study has much to offer.

“The SiO masers are interesting in what they can tell us about what’s going on in the stars,” he says. “For direct practical applications, there’s also some hardware-design work, computing expertise, and interaction with a complicated system, and those are all valuable skills for students to have.”

While there are no students involved in the project yet, McIntosh hopes they will be able to again control the telescope, take and analyze data, work on database development, and “study the stars,” once remote observation is resurrected. He has “tried to expose as many students as possible to what the telescope has to offer,” and his efforts have resulted in a number of student publications and presentations.

McIntosh is now beginning work on the project, which will span two summers. He intends to spend the month of July working on curriculum materials and to return to the Haystack to address development and data management issues in August. Next summer he and Haystack staff will assess the effectiveness of the modules he creates and revise as necessary to improve their implementation.

This activity is made possible by the Massachusetts Institute of Technology, with prime funding from the National Science Foundation.

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