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POS-G57 – Imaging Magnetic Dynamics on the Atomic Scale

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The ability to image magnetodynamics has proved key to the advancement of spintronics technology [1]. As technological size scales reduce and speeds increase, there is a need to provide commensurate advancement in experimental tools to image magnetodynamics down to the atomic scale with ultrafast time resolution. In pursuit of this goal, we are developing a custom designed scanning tunneling microscope which will be paired with a THz light source to create a THz-STM that achieves ultrafast time resolution [2]. THz-STM experiments require significant acquisition time and present an extreme challenge. To make such an instrument practical, the STM must be designed with optical access, long-term stability, and rigidity in mind. Progress on the design and construction of a variable temperature scanning tunneling microscope purpose built for the observation of magnetodynamics will be presented.

1 https://science.sciencemag.org/content/294/5546/1484
2 https://www.nature.com/articles/nphoton.2013.151

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