

# **A new generation of neutron focusing optics**

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Neutron scattering is a powerful suite of scientific tools for determining the structure and dynamics of matter. The technique is widely used in physics, materials science, biology, and engineering. National neutron scattering facilities are multi-million dollar installations, serving hundreds of scientists per year. While modern light optical instruments use a variety of focusing devices (such as lenses, Fresnel zone plates and mirrors), neutron instruments remain in the age of pinhole cameras. Were powerful optical tools available for neutron scattering, they might bring significant, even transformative, improvements to rate-limited neutron methods and enable new science. The MIT/NASA collaboration have recently pioneered the use of neutron Wolter mirrors, which have the potential of transforming neutron imaging and scattering instruments from pinhole cameras into microscopes. I will present the motivation and latest results from this project.