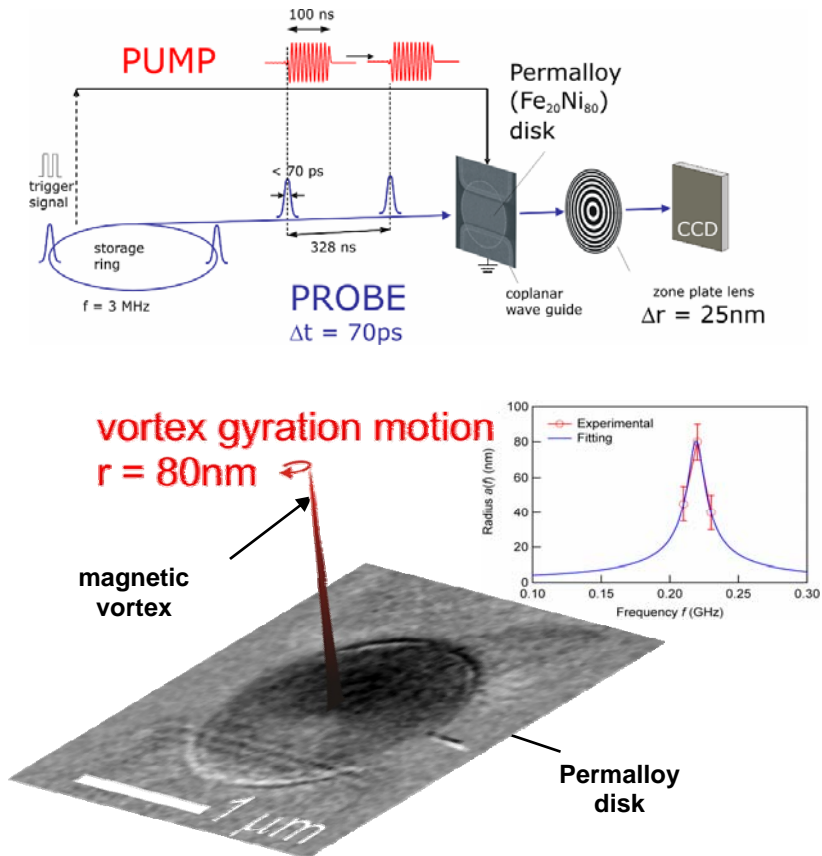


## Current-Induced Resonant Vortex Motion

Peter Fischer et al., Lawrence Berkeley National Lab

Supporting/Contributing Agency: DOE

Magnetic vortices occurring in micron-sized confined magnetic elements such as disk structures are attracting fundamental scientific interest and are considered as novel concepts in technological applications. Upon injecting AC current pulses a spin torque acts on the vortex and excites a resonant gyrotropic motion. Time resolved magnetic soft X-ray microscopy at the Advanced Light Source at LBNL provides both high spatial and temporal resolution (better than 15 nanometers and 100 picoseconds, respectively), allowing for imaging of the vortex motion. From the radius of the vortex core motion the spin polarization of the current can be determined, and from that the strength of the spin torque effect can be derived. The experimental data can be well understood within micromagnetic modeling, including the spin torque effect, and serve as valuable input to future applications in spintronics.



### References/Publications:

S. Kasai, et al., *Phys. Rev. Lett.* **101** 237203 (2008)