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Preliminary Inelastic Neutron Scattering Results for the Magnetic Excitations in the Model Superconductor $HgBa_2CuO_{4+\delta}$[1] G. YU, X. ZHAO, Y. C. CHO, G. CHABOT-COUTURE, E. M. MOTOYAMA, Department of Applied Physics, Physics, and Stanford Synchrotron Radiation Laboratory, Stanford University, Stanford, CA 94305, USA, P. BOURGES, Laboratoire Leon Brillouin, CEA-Saclay, 91191 Gif-sur-Yvette, Cedex, France, M. GREVEN, Department of Applied Physics and Stanford Synchrotron Radiation Laboratory, Stanford University, Stanford, CA 94305, USA — $HgBa_2CuO_{4+\delta}$ has a simple crystal structure and possess the highest T_c (97 K at optimal doping) among all the single-layer cuprates. In a significant breakthrough, we were able to grow large $HgBa_2CuO_{4+\delta}$ single crystals, enabling us to perform the first inelastic magnetic neutron scattering experiments on this model superconductor. We performed energy scans at (π,π) and momentum scans at fixed energy at 10 K and above Tc. Our preliminary results include the observation of a 52 meV feature at (π, π) that resembles the "resonance" found in other cuprates.

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