Abstract Submitted
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Neutron scattering study of the antiferromagnetic response of $HgBa_2CuO_{4+\delta}$[1] YANG TANG, MUN CHAN, CHELSEY DOROW, MIKE VEIT, YANG GE, MARTIN GREVEN, University of Minnesota, LUCILE MANGIN-THRO, YVAN SIDIS, PHILIPPE BOURGES, Laboratoire Lon Brillouin, France, XUDONG ZHAO, Jilin University, China, PAUL STEFFENS, Institut Laue Langevin, France, ANDREW CHRISTIANSON, DOUGLAS ABERNATHY, Oak Ridge National Laboratory, JITAE PARK, Forschungs-Neutronenquelle Heinz Maier-Leibnitz — Antiferromagnetic correlations have been argued to be the cause of the *d*-wave superconductivity and of the pseudogap phenomena exhibited by the cuprates. Although neutron scattering experiments of the antiferromagnetic response have been reported for a number of cuprates, results for structurally simple $HgBa_2CuO_{4+\delta}$ (Hg1201) have begun to emerge only recently. Specifically, we have found for moderately-doped Hg1201 ($Tc \approx 71$ K, pseudogap temperature $T^* \approx 305$ K) that the two most prominent features of the magnetic spectrum reported for other cuprates are absent: the X-shaped 'hourglass' response and the resonance mode in the superconducting state. Instead, the response of Hg1201 is Y-shaped, gapped, and significantly enhanced below T^* [1]. Here we will discuss our ongoing efforts to understand the doping dependence of the AF response in Hg1201. [1] M. K. Chan *et al.,* arXiv:1402.4517.

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