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Elastic and Inelastic neutron scattering results in heavily Cu doped $NaFe_{1-x}Cu_xAs$ with x approaching 0.5 YU SONG, Rice University — Compared to Co and Ni doping, doping Cu in $NaFe_{1-x}Cu_xAs$ causes the system to become insulating at high dopings. We found in heavily Cu doped NaFe1-xCuxAs, low energy spin excitations are strongly enhanced similar to Cu doped Fe(Se,Te). We have further found for x approaching 0.5, Fe and Cu tend to order and results in a novel magnetic state, explaining the enhanced low energy spin excitations in heavily Cu doped $NaFe_{1-x}Cu_xAs$.

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