Geometric critical line and unconventional ordered phases in quantum kagome antiferromagnets JOEL MOORE, CENKE XU, University of California, Berkeley — We study the phase diagram of the XXZ antiferromagnet for spin>=1 on the kagome lattice for comparison with recent neutron scattering results. In addition to the usual geometric classical criticality that appears at zero temperature in the classical limit of the XY model, there is another zero-temperature geometrical critical line that separates two unconventional ordered phases. We also discuss numerical transfer-matrix results and similarities to plaquette phases proposed in the honeycomb lattice quantum dimer model.

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