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## Microscopic magnetic nature of the quasi-one-dimensional antiferromagnet BaCo2V2O8

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BaCo2V2O8, belongs to a wide group of quasi-1D antiferromagnets (AF). The Q1D compounds display a variety of fascinating ground states governed by the strong spin-spin coupling along the 1D direction and a much weaker coupling along other directions. BaCo2V2O8 display a long-range AF order below TN=5 K and possibly short-range order all the way up to 30 K. Further, a novel type of field induced magnetic order has been found for T<1.8 K and Hc>3.9 T. It was determined to be an incommensurate spin structure caused by quantum fluctuations, fitting well to theoretical predictions for a so-called Tomonaga-Luttinger liquid (TLL). To the best of our knowledge, we present here the first investigation of the microscopic magnetic nature of single crystalline BaCo2V2O8 samples. Our data reveal several clear muon frequencies below TN indicating the onset of a long-range order. Above 5 K, the muSR spectra are well fitted to a simple power-exponential relaxing function. The temperature dependence of the relaxation-rate as well as the power display a clear anomaly around T=40 K, indicating the onset of short-range 1D correllations. Finally we also present initial field dependent data.

## Please specify poster or talk

Poster

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Multiple order parameter systems

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