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Dynamic Frustration in $PrAu_2(Si_{1-x}Ge_x)_2$[1] RAYMOND OSBORN, EUGENE GOREMYCHKIN, Argonne National Laboratory, BRIAN RAINFORD, University of Southampton, UK, ROBIN MACALUSO, University of Northern Colorado, D.T. ADROJA, Rutherford Appleton Laboratory, UK, MAREK KOZA, Institut Laue Langevin, France — We have recently proposed that frustration is dynamically induced in the spin glass, $PrAu_2Si_2$, a singlet ground state system, in which the interionic exchange is just sufficient to induce a magnetic moment. The degree of static disorder is far too small to produce spin glass freezing but dynamic fluctuations can destabilize the induced moments and frustrate the long-range magnetic correlations. We have studied the crystal field excitations in $PrAu_2(Si_{1-x}Ge_x)_2$, for which long-range order is stabilized at $x \approx 12\%$. The excitation energy is independent of x but inhomogeneous broadening increases linearly for $x < 0.2$, *i.e.*, long-range order is stabilized even though static disorder is increasing. Tuning the dynamic frustration with concentration or pressure could provide a test of the concept of "avoided criticality" in glassy systems.

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