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Nonequilibrium spin glass dynamics with the Janus computer¹ DAVID YLLANES, Universidad Complutense de Madrid, F. BELLETTI, A. CRUZ, L.A. FERNANDEZ, A. GORDILLO-GUERRERO, M. GUIDETTI, A. MAIO-RANO, F. MANTOVANI, E. MARINARI, V. MARTIN-MAYOR, J. MONFORTE, A. MUNOZ SUDUPE, D. NAVARRO, G. PARISI, S. PEREZ-GAVIRO, J.J. RUIZ-LORENZO, S.F. SCHIFANO, D. SCIRETTI, A. TARANCON, R. TRIPICCIONE, JANUS COLLABORATION — The out of equilibrium evolution of the Edwards-Anderson spin glass is followed for a tenth of a second, effectively halving the (logarithmic) temporal gap between previous simulations and experiments. In fact, we have been able to make safe predictions about the behavior at experimental times, using mild extrapolations. This work has been made possible by Janus, a special purpose computer designed by our collaboration. We have thoroughly studied the spin glass correlation functions and the growth of the coherence length for L = 80lattices in 3D, using L = 24, 40 lattices to check for finite size effects. We present clear evidence for a replicon correlator. Our main conclusion is that these spin glasses follow non-coarsening dynamics, at least up to the experimentally relevant time scales.

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