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From geometry and characteristic length scales to different relaxation regimes in Single-Chain Magnets ALESSANDRO VINDIGNI, Laboratory for Solid State Physics, ETH Zurich — The recently discovered Single-Chain Magnets can be considered a novel class of nanomagnets, representing the ultimate miniaturization limit of bistable magnetic nanowires. The name highlights the analogy with Single-Molecule Magnets: Both SMMs and SCMs show remanent magnetization in zero magnetic field due to slow dynamics, in spite of the reduced dimensionality (0D and 1D respectively) which forbids the occurrence of magnetic ordering. Beyond this common feature, the origin of slow dynamics is remarkably different. In particular, for a genuine 1D magnetic system slow dynamics at low temperature comes from the divergence of the relaxation time as the critical point, T=0, is approached. This scenario is actually encountered in SCMs at relatively high T in a regime where each spin chain behaves as if it were infinite. However, for a wide class of molecular chains (i) naturally occurring defects and (ii) non-collinearity between the single-spin anisotropy directions and the crystal axes break the site-by-site translational invariance along the chain. Both these phenomena affect slow relaxation. We will show how this fact can be accounted for through *ad hoc* extensions of Glauber dynamics. Different relaxation regimes are observed depending on the relationship between the correlation length and the actual distance between two defects, the lattice spacing and the domain-wall size.

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