Bologna Workshop on:
CFT AND INTEGRABLE MODELS
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# Integrability and truncated spectrum approach for out-of-equilibrium dynamics

*Wednesday, 6 September 2023 09:00 (50 minutes)*

A big challenge of modern-day many-body theory is to expand the existing (mostly equilibrium) toolbox to treat out-of-equilibrium problems, for example quantum quenches. Results are predicated on the ability to compute overlaps between the initial state and eigenstates of the Hamiltonian that governs time evolution; such overlaps are unavailable in most cases. For integrable models, as often is the case, some detailed results can be extracted from specific cases. This talk will present a hybrid theoretical/numerical approach, inspired by the Truncated (Conformal) Spectrum Approach, to preferentially generate the states with high overlaps for a generic quantum quench starting from the ground state or an excited state of an initial Hamiltonian. We use these preferentially generated states, in combination with a "high overlap states truncation scheme" and a modification of the numerical renormalization group, to compute non-equilibrium dynamics following a quench in the Lieb-Liniger model.

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