Quench dynamics of interacting impurity boson in boson sea[1]

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Astronomy, Rutgers University — We use the Yudson Representation to study the
quench dynamics of a system consisting of a one dimensional gas of interacting
bosons and a mobile impurity boson. We are able to get an exact solution for finite
coupling constant and finite time for two particles. To solve for more particles,
long time approximation is made to simplify the calculation. We calculate the time
evolution of impurity density and noise correlation and compare the results with
experimental data.

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