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Evolution of quantum wave packets in the presence of time-dependent absorption MAXIMILIEN BARBIER, Northumbria University, MATHIEU BEAU, School of Theoretical Physics, Dublin Institute for Advanced Studies, ARSENI GOUSSEV, Northumbria University — The dynamics of a quantum particle submitted to a barrier is strongly influenced by the wave nature of matter, and may for instance lead to the classically forbidden phenomenon of tunnelling. While the case of a real potential barrier is a standard problem in quantum mechanics, different approaches are possible to model an *absorbing* barrier. Here we present a quantitative comparison between two such approaches. The first one describes an absorbing time-dependent point-like barrier by means of certain time-dependent boundary conditions of Kottler's type, while the second approach treats the wave function of the moving particle as a component of a spinor evolving under the action of a matrix Hamilton operator.

Maximilien Barbier
Northumbria University

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