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We consider a model of a one-atom maser that consists in the following ingredients: a small reference system S corresponding to one mode of the EM field in a laser cavity, an infinite chain C of identical independent quantum subsystems E, corresponding to a sequence of atoms passing through the laser cavity, and heat reservoir R modeling the losses in the device. On the one hand the system S interacts for a fixed duration with the successive elements E of the chain C, and, on the other hand, it interacts continuously with the reservoir R. We describe the large time behaviour of the fully coupled system S+R+C, its asymptotic state and the exchanges between the chain and the reservoir in the large times limit.

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