Optimal cycles for finite-time Carnot engines

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We consider the optimization of a finite-time Carnot engine characterized by small dissipations. We bound the power with a simple inequality and show that the optimal strategy is to perform small cycles around a given working point, which can be thus chosen optimally. This optimal point is independent of the figure of merit combining power and efficiency that is being maximized. Furthermore, for a general class of dissipative dynamics the maximal power output becomes proportional to the heat capacity of the working substance. Since the heat capacity can scale supra-extensively with the number of constituents of the engine, this enables us to design optimal many-body Carnot engines reaching maximum efficiency at finite power per constituent in the thermodynamic limit.