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**Abbas Momeni\*** ([momeni@mast.queensu.ca](mailto:momeni@mast.queensu.ca)), Jeffery Hall, University Ave, Kingston, Ontario K7L3N6. *A new variational principle for Hamiltonian PDEs with nonlinear boundary conditions.*

Selfdual variational calculus is further refined and used to address questions of existence of local and global solutions for various parabolic semi-linear equations, Hamiltonian systems of PDEs, as well as certain nonlinear Schrödinger evolutions. This allows for the resolution of such equations under general time boundary conditions which include the more traditional ones such as initial value problems, periodic and anti-periodic orbits, but also yield new ones such as “periodic orbits up to an isometry” for evolution equations that may not have periodic solutions. In the process, we introduce a method for perturbing selfdual functionals in order to induce coercivity and compactness, while keeping the system selfdual. (Received September 11, 2008)