Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Optimized efficiency and figure of merit for a tight-coupling molecular motor: their bounds and phase diagrams[1] MULUGETA BEKELE, TADLE NURU, Department of Physics, Addis Ababa University — We consider a model translational motor that consumes one fuel molecule against a given amount of load at the same physiological temperature. Taking the chemical step to be tightlly coupled to the mechanical step, we derive thermodynamic quantities such as input and output power as well as power efficiency. Using optimization criteria of energy utilization, we determine the motor's optimized efficiency as well as its figure of merit. Bounds and phase daigrams of these quantities are studied.

[1]International Science Program, Uppsala University, Uppsala, Sweden

Mulugeta Bekele
Department of Physics, Addis Ababa University

Date submitted: 15 Nov 2013 Electronic form version 1.4