## Boosting Tunneling by Collective Effects and Dynamical Control

 $G Kurizki^1$ 

<sup>1</sup>Department of Chemical and Biological Physics, Weizmann Institute of Science, 234 Herzl Str., Rehovot, Israel. Contact Phone: +97289342365

Contact Email: gershon.kurizki@weizmann.ac.il

We show analytically that giant enhancement of tunneling in N-particle systems can be effected by collective bosonic effects combined with dynamical control of the system via periodic phase shifts. The enhancement can enable a range of applications, ranging from quantum state control of photonic field modes to the enhancement of nuclear reactions and radioactive decay.