

## **Driving rotation in mirrors with radio frequency waves\***

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In tokamaks and mirrors, alpha particles can be removed collisionlessly at low energy using radio frequency waves in a process known as alpha channeling [1,2]. The wave essentially creates a diffusion path in phase space between the hot core of the plasma and the cold periphery. This process was recently extended to rotating mirrors [3]. While in stationary plasmas alpha particle energy is transferred to the wave, in rotating plasmas it can be transferred to the wave or to rotation energy. By choosing the diffusion path in phase space, we can transfer energy between any combination of particles, waves, and rotation. Of particular interest is using these waves to drive rotation in a plasma centrifuge [4]. By driving rotation with waves, the Alfvén critical ionization energy that has limited rotation speeds in past experiments may be overcome.

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[3] A.J. Fetterman and N.J. Fisch. Phys Rev Lett **101** 205003 (2008).

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