

Atomic and molecular structure and dynamics

- Frequency evaluation of the doubly forbidden $^1S_0 \rightarrow ^3P_0$ transition in bosonic ^{174}Yb (4 pages) 050501(R)
 N. Poli, Z. W. Barber, N. D. Lemke, C. W. Oates, L. S. Ma, J. E. Stalnaker, T. M. Fortier,
 S. A. Diddams, L. Hollberg, J. C. Bergquist, A. Brusch, S. Jefferts, T. Heavner, and T. Parker

Atomic and molecular collisions and interactions

- Selective enhancement of $1s2s2p\ ^4P_J$ metastable states populated by cascades in single-electron transfer collisions of $\text{F}^{7+}(1s^2/1s2s\ ^3S)$ ions with He and H_2 targets (4 pages) 050701(R)
 T. J. M. Zouros, B. Sulik, L. Gulyás, and K. Tökési

Atomic and molecular processes in external fields, including interactions with strong fields and short pulses

- Stopping supersonic oxygen with a series of pulsed electromagnetic coils: A molecular coilgun (4 pages) 051401(R)
 Edvardas Narevicius, Adam Libson, Christian G. Parthey, Isaac Chavez, Julia Narevicius, Uzi Even,
 and Mark G. Raizen
- Smooth inductively coupled ring trap for atoms (4 pages) 051402(R)
 P. F. Griffin, E. Riis, and A. S. Arnold
- Radial compression of a non-neutral plasma in a cusp trap for antihydrogen synthesis (4 pages) 051403(R)
 H. Saitoh, A. Mohri, Y. Enomoto, Y. Kanai, and Y. Yamazaki
- Signature of quantum interferences in above-threshold detachment of negative ions by a short infrared pulse (4 pages) 051404(R)
 S. Bivona, G. Bonanno, R. Burlon, D. Gurrera, and C. Leone

Matter waves

- Dissipative quantum Ising model in a cold-atom spin-boson mixture (4 pages) 051601(R)
 Peter P. Orth, Ivan Stanic, and Karyn Le Hur
- Equation of state and phases of a polarized unitary Fermi gas (4 pages) 051602(R)
 S. Y. Chang
- Bright solitary waves of atomic Bose-Einstein condensates under rotation (4 pages) 051603(R)
 N. A. Jamaludin, N. G. Parker, and A. M. Martin

Quantum optics, physics of lasers, nonlinear optics, classical optics

- Optical coupling of fundamental whispering-gallery modes in bispheres (4 pages) 051801(R)
 L. I. Deych, C. Schmidt, A. Chipouline, T. Pertsch, and A. Tünnermann
- Brownian soliton motion (4 pages) 051802(R)
 Yaroslav V. Kartashov, Victor A. Vysloukh, and Lluís Torner
- Slowing light through Zeeman coherence oscillations in a duplicated two-level system (4 pages) 051803(R)
 F. A. Hashmi and M. A. Bouchene
- Detection of spin correlations in optical lattices by light scattering (4 pages) 051804(R)
 Inés de Vega, J. Ignacio Cirac, and D. Porras