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Abstract for an Invited Paper  
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**Multidisciplinary applications of state-selected atoms**

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State-selected atoms provide powerful tools to attack a wide range of problems. I will discuss two examples: population inversion, which enables masers that can be used as high-stability clocks and for precision tests of Lorentz and CPT symmetry; and spin polarization of noble gases, which enables high-sensitivity gas-phase magnetic resonance, with applications in materials science and biomedical imaging.