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**Decoherence of a Rb BEC caused by stray magnetic fields and surface effects** ARNE SCHWETTMANN, JONATHAN TALLANT, DONALD W. BOOTH, C. ERIN BROWN, JAMES P. SHAFFER, University of Oklahoma — We present progress and perspectives on measuring the influence that stray magnetic fields and surface effects have on the decoherence of a BEC in a double-well potential surface trap. The double-well trapping potential is provided by a radiofrequency magnetic microtrap that traps Rb with trap minima located  $\sim 100 \mu\text{m}$  from the surface of an atom chip. The coupling to the environment is from surface effects generated by the atom chip and through an applied fluctuating magnetic field. The spectral noise density of the applied magnetic field is varied in order to investigate the effects of subohmic, superohmic and ohmic type baths on the decoherence rate.

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