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Modeling evaporative cooling of a dual-species Bose-Einstein L. HALMO, M. EDWARDS, Georgia Southern University, S. RONEN, J.L. BOHN, JILA, C.W. CLARK, NIST — A recent experiment performed on a Bose-Einstein condensate mixture of Rb85 and Rb87 by the Wieman group at JILA observed a complicated pattern of multiple interleaved "bubbles" of the two species at the end of evaporative cooling. In this experiment, the condensate mixture was formed by first cooling the thermal- gas mixture in a magnetic trap and then transferring the sample into an optical trap where final cooling was achieved by decreasing the depth of the optical trap until condensate formation occurred. We have studied the evaporative cooling of the condensate mixture in the optical trap under conditions similar to those in the JILA experiment by evolving a "thermally excited" initial state with the Gross-Pitaevskii equation [R.J. Marshall, et al., Phys. Rev. A, **59**, 2089 (1999)]. Our studies of the results of evaporative cooling have included both linear and exponential ramping of the cooling and include the effect of gravity. We also compare our results with experiment.

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