1067-65-2069 **Julie Roy*** (jroy11@mscd.edu), Campus Box 38, P.O. Box 173362, Denver, CO 80217, and **R. Baker Kearfott** (rbk@louisiana.edu), P.O. Box 41010, Lafayette, LA 70504. *A Branch and Bound Process for Singular Global Optimization Problems - Preliminary Explorations.* Preliminary report.

For global optimization problems, it often occurs that there are feasible lines, planes, hyperplanes, or hypersurfaces that have approximately optimal objective function values. For these problems, common deterministic global optimization software may only find one optimal point and not even indicate that other solutions exist, and software with automatically verified complete search algorithms may not complete in a reasonable amount of time. A method for computing rigorous enclosures of sets that contain approximately feasible, approximately optimal solution points for these problems is briefly explained. Preliminary explorations and results for incorporating this method into a general branch and bound process are given. For singular problems, computational time may be significantly less with this modified branch and bound process than with a general branch and bound process. (Received September 22, 2010)