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Free boundary minimal disks in convex balls

We prove that every strictly convex 3-ball with nonnegative Ricci-curvature contains at least 3 embedded free-boundary minimal 2-disks for any generic metric, and at least 2 solutions even without genericity assumption. Our approach combines ideas from mean curvature flow, min-max theory and degree theory. We also establish the existence of smooth free-boundary mean-convex foliations. This is joint work with Dan Ketover.