Pushing the Frontier

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Abstract:
Two firms advance a common Brownian research state through private effort, with shared progress and rewards that depend on participation. They learn about a hidden state when the process reaches a new running maximum. A single parameter changes the payoff from joint discovery, moving the model from a research collaboration to a patent race; as product-market competition increases, joint search gives way to wars of attrition.

We construct a Markov perfect equilibrium in symmetric strategies for continuous threshold distributions. Lower joint-discovery rents reduce joint effort and the value of continuation. When joint discovery pays less than exit, firms randomize over concessions both during setbacks and as new records are reached. Further rent erosion can then raise completion by accelerating the selection of a sole winner.