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Abstract :
This paper analyzes the effects of product innovation on the firms' investment behavior in a dynamic duopoly framework. A differential games setting is considered where initially two firms are active on a homogenous product market. One of the firms has an option to introduce a new product that is horizontally and vertically differentiated from the established product. The resulting differential game has three states corresponding to three capital stocks: one for each firm to produce the established product, and one for the innovating firm to produce the new product. We numerically derive Markov perfect equilibria.
One of the most remarkable results is that in most cases the non-innovating firm benefits when the other firm carries out the innovation option. The intuition is that, to increase demand for the innovative product, the innovative firm reduces capacity on the established market, which increases the price of the established product and thus the payoff of the non-innovating firm.

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He received in 1995 a PhD in applied mathematics from the Vienna University of Technology. Afterwards, he was an assistant and associate professor at the University of Vienna and an associate professor of Economics at the University of Southern California in Los Angeles (1999-2002). From 2003-2010, he was full professor and chair for Economic Policy at Bielefeld University and since 2004 he is also professor at the Institute of Mathematical Economics at Bielefeld University.
Herbert Dawid has worked extensively on economic dynamics, dynamic games, agent-based models exploring issues of market interaction, industry dynamics and economics of innovation. He has published a book and numerous articles in international refereed journals in these areas.
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Dynamic Strategic Interaction Between an Innovating and a Non-innovating Incumbent

Herbert DAWID
Bielefeld University

December 8, 2010
13:00 – 14:00

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Building of Science – Room BS001
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