Im Rahmen der Vortragsreihe
„Bedrohungen der
Offenen Gesellschaft heute"
lädt die Karl Popper Foundation Klagenfurt
herzlich zu folgendem Vortrag ein:

DYNAMICS AND OPTIMAL CONTROL OF MEXICAN DRUG CARTELS
Der Vortrag wird in deutscher Sprache gehalten.

em. o. Univ.-Prof. Dr. Gustav Feichtinger
Technische Universität Wien

Samstag, 18. November 2023 | 15.15 Uhr| Raum B02.2.05 (Lakeside Park)

Abstract:
Recently, Prieto-Curiel et al. (2023) published a remarkable paper in in the prestiguous journal SCIENCE dealing with the dramatically increased homicide rate in Mexican drug cartels. Describing the dynamics by a differential equation the authors are able to model recruitment, state incapacitation and violent conflicts as source of the cartel size variation.

Descriptive models are important to derive 'what if' results. In what follows, however, we look for optimal measures to control exorbitant violence related to cartels.

The objective of the Mexican police is twofold. First and primarily, it want to reduce violence, particularly homicides. Secondly, it make efforts to minimize the power of the cartels, reflecting particularly illicit drug trafficking. Assuming two interacting cartels, optimal control theoretic methods are applied to derive efficient stratregies to minimize the discounted stream of a weighted mean of the two objectives just mentioned including also the costs of the instruments.

Although the situation might be described appropriately as a (three-person) non-zero sum differential game, in the present context we restrict ourselves to a uni-lateral decision maker, namely the Mexican government. Preliminary calculations illusdtrate that even in this simple case inherent non-linearities lead to complex bevavior of the optimal solution paths.

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