Two decades of adaptive control pitfalls

Adaptive control is a very appealing technology, at least in principle. Yet its use has been conditioned by an attitude of distrustfulness on the part of some practitioners. In the lecture, we review (without presupposing extensive knowledge of adaptive control on the side of listeners) some concepts the isolation of which was necessary to engender confidence in the technology. These include the MIT rule, where it was initially very hard to characterize situations in which it would work and in which it would not work; the bursting phenomenon, and how to prevent it; the notion that identification of a plant is only valid conceptually for a restricted range of controllers (with the implication that in adaptive control, certain controller changes may be hazardous), and the concept of multiple model adaptive control, which from some points of view raises as many problems as it solves.