

# Partial synchronization and partial observers

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## Abstract

An interesting and by now popular subject in the physics and the dynamics literature is that of 'phase synchronization'. Typically, in phase synchronization the aim is to investigate whether or not physical or biological systems may exhibit phase synchronization under the influence of coupling between the systems. Phase synchronization is clearly a weaker property than full synchronization, where complete identical motion of the systems is required. The purpose of the talk is to provide a control theoretic basis for phase synchronization. It is shown that this provides arguments for studying 'partial observers'. Ideally, this can be motivated in an example of human body dynamics where one measures blood pressure and one wants to determine or estimate, say, the heart-beat. In the talk a review will be given of some results on partial observer design and partial synchronization.