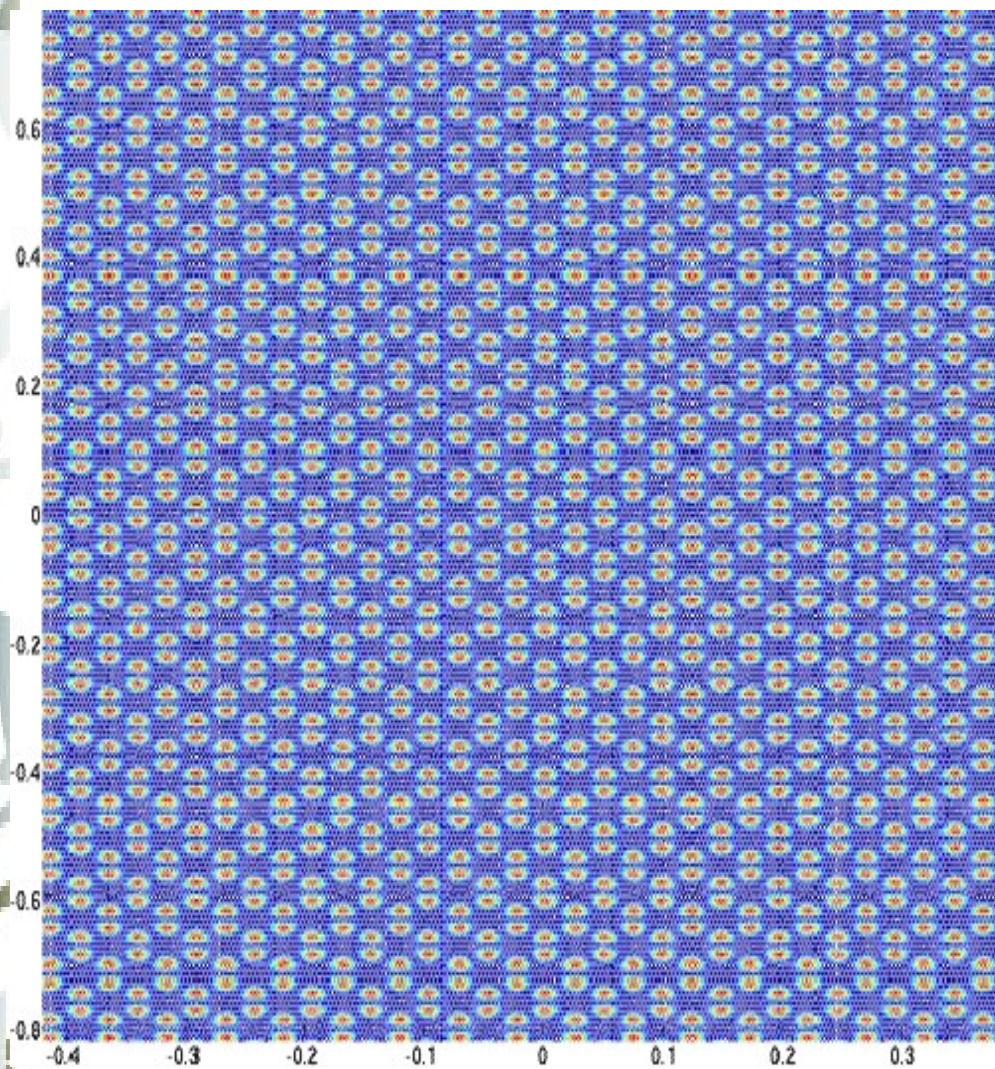


CENTRE FOR EXCELLENCE IN BASIC SCIENCES

Quantum Chaos

Prof. Sudhir R. Jain,
BARC, Mumbai,

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Chaos – the science of unpredictability - is commonly exemplified in the natural world. Usually, nonlinearity underlies chaos. Due to the correspondence principle, connecting classical to quantum mechanics, finding the exact quantum analogue of chaos presents itself. The subject will be illustrated by simple examples. Illustrations of semiclassical trace formula for simple systems will make precise the classical-quantum connection. Connection between quantum mechanics and random matrix theory will be shown to pave the way towards exact results for chaotic quantum systems. These connections run deep into pure mathematics, a glimpse will be shown. There are many more questions that are so easy to state and so hard to answer: a few of these will be shown.