Quantum Chaos and Number Theory

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Abstract

Quantum Chaos is an emerging branch of Mathematical Physics, studying the fine structure of the energy spectrum and of the wave functions of quantum systems in the semi-classical limit. It offers many tantalizing challenges for the mathematician. Some of the more accessible models are closely connected to cutting-edge issues in Number Theory. The lecture, aimed at a general audience, will describe some of these problems, what has been accomplished to date and the many outstanding issues remaining.