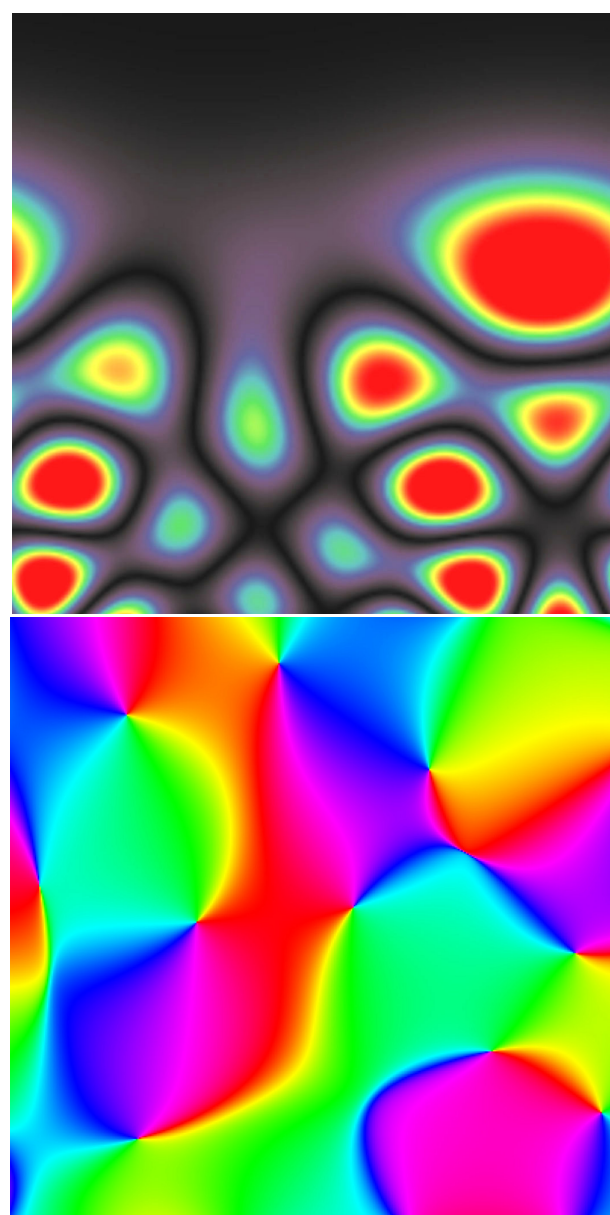


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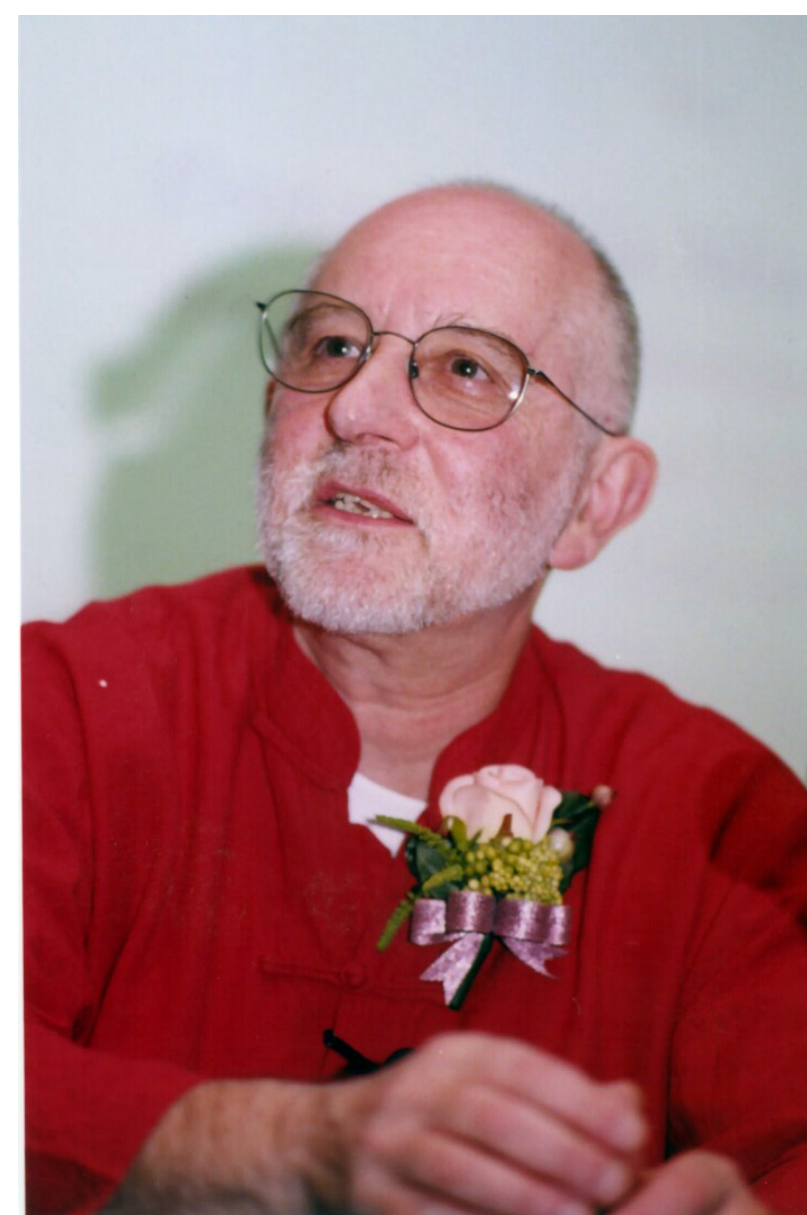
A CSONKA PÁL DOKTORI ISKOLA VENDÉGEINEK ELŐADÁSAIRA



Sir Michael V. Berry
Fellow of the Royal Society

*Quantum, chaos, and
the singing of the primes*

The Riemann hypothesis can be interpreted as stating that the prime numbers contain 'music', whose component frequencies are the Riemann zeros. The question "Frequencies of what?" leads to tantalizing connections with the energy levels of quantum systems whose corresponding classical motion is chaotic, and the analogy suggests directions for seeking the elusive dynamical system whose corresponding quantum eigenvalues are the zeros. At the level of statistics, predictions for the Riemann zeros based on semiclassical quantum asymptotics (with primes as periods of classical trajectories) have reached a high degree of accuracy and refinement. For the zeros themselves, the Riemann-Siegel formula and its improvements lead to new ways of calculating quantum levels.



Gary W. Gibbons
Fellow of the Royal Society
*Black holes: from Astrophysics
to String theory*

This talk will be an overview and history of black holes from John Michell's original prediction in 1784 to the present day aimed at the non-specialist. Although usually thought of as a major part of modern relativistic astrophysics, both observational and theoretical, which of course they are, black holes currently also play a central role in quantum gravity: the theoretical attempt to unify Quantum Mechanics and Einstein's General Relativity. A sort of inside out black hole caused by cosmic repulsion due to dark energy is responsible for quantum fluctuations in an inflationary stage of the early universe which grew to make the stars and galaxies we see today. These developments have also provoked experimenters to try to design analogues which could be built in the laboratory.



időpont: 2013. május 9., 10:00 - 11:45

(az előadások nyilvánosak, az MTA Fizikai Tudományok Osztálya Tudományos Ülésén hangzanak el)

helyszín: Magyar Tudományos Akadémia, Nagyterem
1051 Budapest, Széchenyi István tér 9. II. emelet

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