\* Electronic Address: R.S.MacKay@warwick.ac.uk

<sup>1</sup> University of Warwick

## Ideas about Riemann's hypothesis

Robert MacKay<sup>1\*</sup>

Riemann's hypothesis, made on the occasion of his election to the Berlin Academy of Sciences, is the conjecture that all the zeroes of his  $\xi$  function are real. As he proved  $\xi$  is even, the conjecture is equivalent to saying that the zeroes of  $\Xi(E) = \xi(2\sqrt{E})$  are real and non-negative. Extending a suggestion of Polya and Hilbert, we seek a Hermitian operator H such that the functional determinant of H - E is  $\Xi(E)$ , which would prove Riemann's hypothesis. I haven't solved it but propose to describe where I have got to.