Randomness and Complexity

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Abstract: Since ancient times randomness had been viewed as an obstacle and difficulty. This attitude has changed in the last century when randomness became central to quantum mechanics and computer science. Contrary to a largely spread opinion, true (perfect) randomness does not exist. In this talk we will use complexity theory to present some basic results on degrees of randomness of finite and infinite sequences and to analyse a form of quantum randomness.

Speaker Bio: Cristian S. Calude holds a personal chair at the University of Auckland, New Zealand, and is a member of Academia Europaea. He had visiting professorships at many universities and research institutes including Cambridge University, Ecole Normale Superieure Paris, Japan Advanced Institute of Science and Technology, Sandia National Laboratories Albuquerque. The mathematical study of epistemological limits of computer science, mathematics and quantum physics is a main thread of his work.