

**Title:** Complexity theory over the reals and probabilistically checkable proofs

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**Abstract:** Probabilistically checkable proofs (PCPs) represent one of the most important recent areas in theoretical computer science . The idea is to make verification proofs of NP-problems more stable: Reading only a *constant* number of data units in such a potential proof will be sufficient to detect faults with high probability.

In this talk we introduce the PCP notion for the real number model of Blum, Shub, and Smale. We then study the existence of certain such “transparent” proofs for the class  $\text{NP}_{\mathbb{R}}$  of real number decision problems verifiable in polynomial time.