

**Pour-El, Marian Boykan; Richards, Ian**

**Noncomputability in models of physical phenomena.** (English) Zbl 0493.35057  
Int. J. Theor. Phys. 21, 553-555 (1982).

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**MSC:**

- 35L15 Initial value problems for second-order hyperbolic equations
- 35L05 Wave equation
- 03F60 Constructive and recursive analysis
- 03D80 Applications of computability and recursion theory
- 34A12 Initial value problems, existence, uniqueness, continuous dependence and continuation of solutions to ordinary differential equations

Cited in **2** Documents

**Keywords:**

computable function of a real variable; recursive analysis; wave equation; Peano's existence theorem; no computable solution

**Full Text:** [DOI](#)

**References:**

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- [3] Pour-El, M. B., and Caldwell, J. (1975). "On a simple definition of computable function of a real variable—with applications to functions of a complex variable," *Z. Math. Logik Grundlagen Math.*, 21, 1–19. · [Zbl 0323.02049](#) · [doi:10.1002/malq.19750210102](#)
- [4] Pour-El, M. B., and Richards, I. (1979). "A computable ordinary differential equation which possesses no computable solution," *Ann. Math. Logic*, 17, 61–90. · [Zbl 0424.68028](#) · [doi:10.1016/0003-4843\(79\)90021-4](#)
- [5] Pour-El, M. B., and Richards, I. (1981). "The wave equation with computable initial data such that its unique solution is not computable," *Advances in Mathematics*, 39, 215–239. · [Zbl 0465.35054](#) · [doi:10.1016/0001-8708\(81\)90001-3](#)

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