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Title: Irrationality and transcendence of continued fractions with algebraic integers

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We extend a result of Hančl, Kolouch and Nair on the irrationality and transcendence of continued fractions. We show that for a sequence $\{\alpha_n\}$ of algebraic integers of degree bounded by d, each attaining the maximum absolute value among their conjugates and satisfying certain growth conditions, the condition

$$\limsup_{n\to\infty} |\alpha_n|^{\frac{1}{Dd^{n-1}\prod_{i=1}^{n-2}(Dd^i+1)}} = \infty$$

implies that the continued fraction $\alpha = [0; \alpha_1, \alpha_2, \dots]$ is not an algebraic number of degree less than or equal to D.

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