

On the number of Pisot polynomials

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Let $M > 0$ be an integer and denote $\mathcal{B}_d(M)$ the set of Pisot or Salem polynomials $x^d - Mx^{d-1} - b_2x^{d-2} - \dots - b_d$, with b_2, \dots, b_d integers. Further let $\mathcal{B}_d^{(0)}(M)$ the subset of $\mathcal{B}_d(M)$, which contains the polynomials with property (F). We proved that $|\mathcal{B}_d(M)| \sim \lambda_{d-1}(\mathcal{D}_{d-1})M^{d-1}$ and $|\mathcal{B}_d^{(0)}(M)| \sim \lambda_{d-1}(\mathcal{D}_{d-1}^{(0)})M^{d-1}$, where \mathcal{D}_d denotes the set of monic contracting real polynomials of degree d , while $\mathcal{D}_d^{(0)}$ is the d -dimensional fundamental SRS region.

Based on the proof we present an algorithm to construct Pisot or Salem polynomials.