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Rational polynomials and Danielewski surfaces

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The classification of rational polynomials is a difficult problem. Until now only simple and quasi-simple rational polynomials are classified (Miyajima–Sugie, Neumann–Norbury and Sasao). Studying carefully this classification we can exhibit interesting rings, which are rings of functions of Danielewski surfaces. Our point of view is that it will be interesting to classify first rational polynomials in those rings. We will ask questions in that direction. Newton trees will be introduced and used in the talk.