Classification of flat CR-singularities of exceptional hyperbolic type

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I will present a joint work with Laurent Stolovitch on normal forms and analytic classification of CR-singularities of real analytic surfaces in $\mathbb{C}^2$ having the form of higher order perturbations of quadrics. The investigation of this problem was initiated by Bishop (1965), followed by Moser and Webster (1983) who showed that it is equivalent to a classification of certain pairs of involutions of $(\mathbb{C}^2, 0)$, and who settled the elliptic case using dynamical methods. A lot of important work has been done on the other cases since then, yet the, so called, exceptional hyperbolic case has stayed widely open until now. Our work deals with those exceptional hyperbolic surfaces that are holomorphically flat. They correspond to pairs of involutions whose composition is a reversible integrable diffeomorphism of $(\mathbb{C}^2, 0)$ of parabolic type. Their analytic classification follows the spirit of the Birkhoff–Écalle–Voronin classification of parabolic diffeomorphisms in complex dimension 1.