# RADIAL, CYLINDRICAL AND MULTIPLE-ENDED SOLUTIONS TO THE CAHN-HILLIARD EQUATION

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ABSTRACT. In the talk I will present the construction of a family $\{u_\varepsilon\}$ of solutions to the Cahn-Hilliard equation

$$-\varepsilon\Delta u_\varepsilon = \varepsilon^{-1}(u_\varepsilon - u_\varepsilon^3) - \ell_\varepsilon, \qquad \ell_\varepsilon \in \mathbb{R},$$

whose zero level set is prescribed and approaches, as $\varepsilon \to 0$, a given complete, embedded, $k$-ended constant mean curvature surface. It is a joint work with Michal Kowalczyk. Moreover, I will present some classification results, dealing with properties such as boundedness, monotonicity and radial symmetry.