NEWTON NONDEGENERATE SURFACE SINGULARITIES II

We define the condition of Newton nondegeneracy and present some results on the class of singularities satisfying this condition. These singularities can be resolved explicitly by a toric modification of \( \mathbb{C}^3 \). We show how this can be done and provide Oka’s algorithm, which gives the dual graph of this resolution directly in terms of the Newton diagram. This result is then allows us to calculate several invariants of the singularity from the Newton diagram. This includes the geometric genus (Merle-Teissier), the zeta function associated with the Milnor fibration (Varchenko) and the Milnor number (Kouchnirenko). If time allows, I will mention some results from my thesis about the geometric genus and Seiberg-Witten invariants.