Texas Tech University. Applied Mathematics Seminar.

CONSTANT MEAN CURVATURE SURFACES: COMPUTATIONAL CONSTRUCTIONS

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ABSTRACT. This represents a preliminary report regarding computational methods to construct constant mean curvature (CMC) surfaces immersed in the Euclidean 3-space. The novel results to be communicated include: a). obtaining isothermic (i.e., isothermal and curvature line) coordinates, starting from an arbitrary parameterization; b). constructing dual surfaces to a given CMC surface; c). numerically solving the famous Bonnet problem, for any immersed surfaces in general, and for CMC surfaces in particular.