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Yingkang Hu* (yhu@georgiasouthern.edu), Dept of Mathematical Sciences, PO Box 8093, Georgia Southern University, Statesboro, GA 30460-8093, and **Jiehua Zhu** (jzhu@georgiasouthern.edu). *High-Degree Polynomial Models for CT Simulation*.

We implement on the computer polynomial surface classes $f(x, y, z) = 0$ for computer graphics modeling. They have various general forms with arbitrary total degree $n \geq 0$. Most of them can have many more parameters than their degree, which make their shape highly flexible. We are using them to build equation-based digital phantoms and compute the x-ray transform for computed tomography (CT) simulation. (Received January 18, 2011)