# PROSPECTS FOR 2 mm DIAMETER NIF POLYMER CAPSULES*

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The National Ignition Facility will require 2 mm diameter shells which meet out-of-roundness (oor) and surface roughness specifications which are at least as good as the best 1/2 mm shells shot on Nova. These perturbations are generally expected to become worse with increasing diameter, so there is some concern about the prospects of meeting those exacting specifications with shells with four times larger diameters. Development is underway at several ICF labs to produce satisfactory shells.

We believe the presently achieved oor is dominated by the as-initially-formed shape. By allowing that shape to relax to a sphere before curing, we are now able to make 1 mm shells which are better than the previous best 1/2 mm shells — the perturbations during curing are far less important than previously believed. At this time, we see no fundamental obstacle to generating NIF scale shells which meet the current roughness specifications.

The PAMS/GDP technique we are using for these shells is capable of producing shells with walls as thin as 1 μm, and with a wide variety of dopant elements and concentration profiles. Strength and permeability of these capsules will be discussed.

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