LYSO Cost Analysis and Lu_2O_3 Price

Ren-Yuan Zhu

California Institute of Technology

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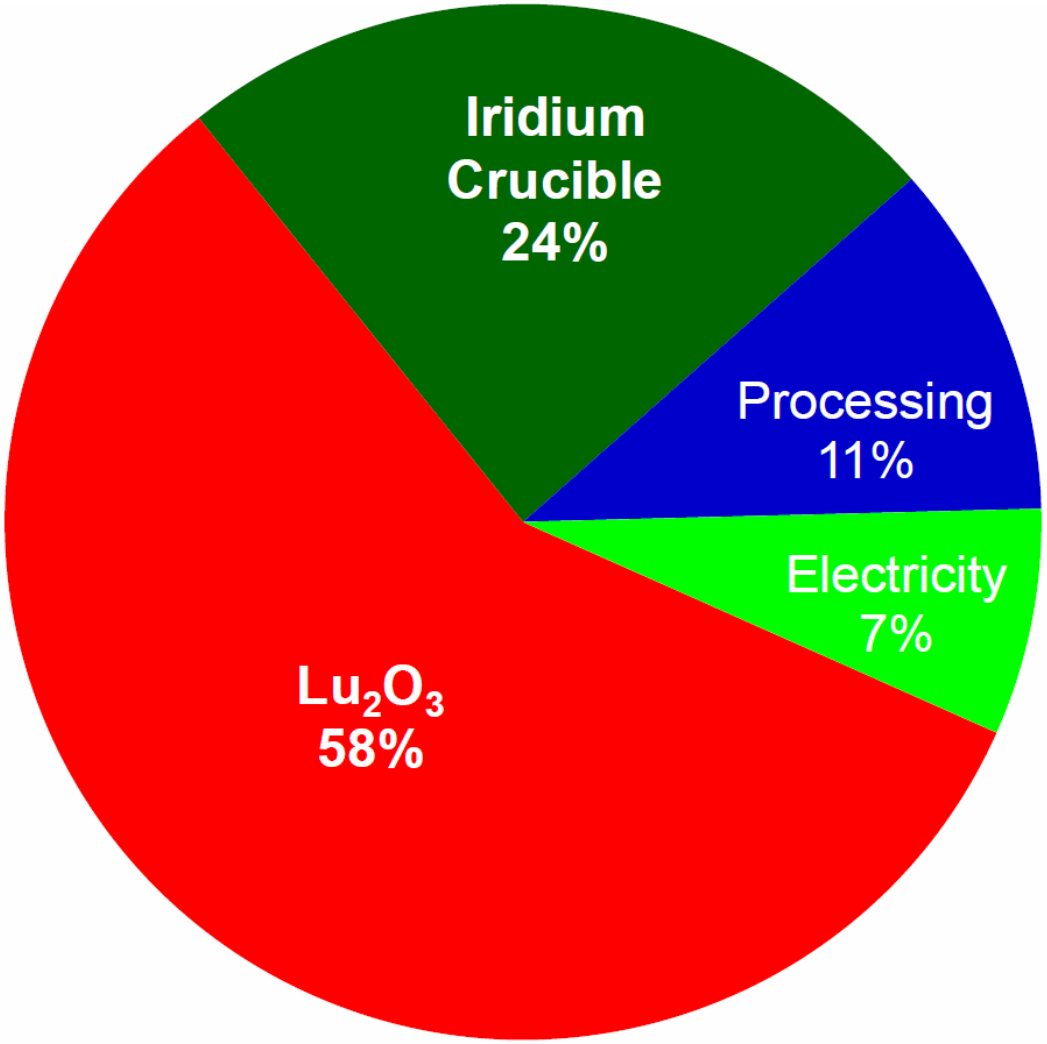
LYSO Crystal Cost Analysis

LYSO crystal cost breakdown:

Assuming Lu_2O_3 cost at \$400 (2,500 RMB)/kg and 33% yield from powders to finished crystals, the LYSO crystal cost is estimated to be about \$18/cc for mass production.

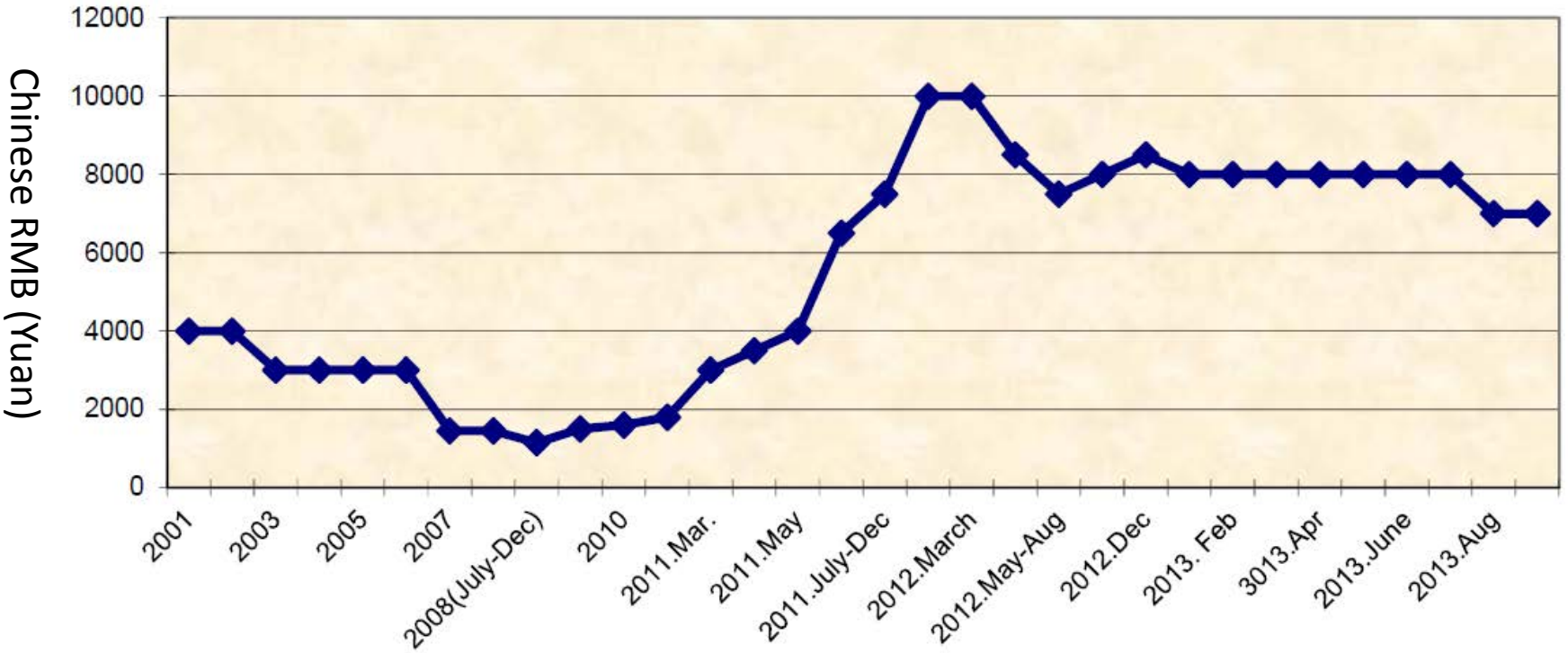
Quotations received in 2011 for SuperB crystals at \$22-25/cc.



\$18 x 0.42 + \$18 x 0.58 x [5,374 or 7,768]/2,500 = \$7.56 + [\$22.44 or \$32.44] = [\$30 or \$40]/cc

Lu_2O_3 Powder Price

The Lu_2O_3 price fluctuates up a lot since mid 2011, showing market speculation



There were indications of lower Lu_2O_3 price in the Summer, 2013, because of possible additional vendors from Australia and the US. Recent rumor on Chinese government's plan to procure strategic reserve for 80 to 90 tons of Lu_2O_3 introduced a new uncertainty.

Summary

The LYSO crystal cost is strongly affected by the Lu_2O_3 price.

All producers of Lu_2O_3 are so far in China. Other countries, such as Australia and the US, may also enter the market. If so it will help to lower the Lu_2O_3 price.

While there are indications of a lower Lu_2O_3 price in the Summer, recent rumor of Chinese strategic reserve for Lu_2O_3 makes the manufactures hold biddings for future.

Since the Mu2e experiment is a project supported by the DOE, it may wise to have a government level involvement, e.g. through the US-China collaboration in the HEP.