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Abstract for an Invited Paper
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Lithium: A Path to Make Fusion Energy Affordable¹

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In this tutorial talk, I will review the history of using lithium as a plasma facing component in fusion energy research devices and show how and why it is beneficial. In particular the talk will focus on recent developments which give credence to a low-recycling solution for the containment which could lead to fusion energy devices much smaller than ITER/DEMO and therefore more affordable. Then it will cover the arguments against such a device and show experimental evidence on how they may be overcome. These include: (1) how to withstand 10's of MW/m², (2) how to recycle the tritium in as little as 90 minutes to prevent a huge inventory, (3) how to overcome the safety and corrosive aspects of a hot flowing liquid metal, and (4) how to pump helium. Finally, the talk will highlight current research projects both DOE and privately sponsored which are pursuing or considering the lithium option.

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