

Abstract for 2012 STARS talk:

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### ***Improving Material Fire Safety – The Eternal Quest Against Fire***

Fire is an equally constructive and destructive force of nature that Mankind has sought to harness to its needs since the “discovery” of this phenomena. Despite millennia of experience with fire, while we can safely say that we can use it to build and maintain our civilization, we continue to struggle with protecting ourselves against it when we lose control of it, or, the fire starts accidentally. At UDRI we have been studying material flammability, especially that of the most flammable material in the US home, polyurethane foam (furniture, bedding), to try to limit home fire losses when this material ignites. The material science and chemistry of flame retarding polyurethane foam to provide fire protection in the US is something which crosses not just the fields of physics, engineering, and chemistry, but also biology, social sciences, and politics when one starts to consider codes & standards, human behavior in fires, and the political issues of flame retardants appearing in the environment. In this seminar, I will present a holistic view of the material flammability problem in the US, what the fire safety & scientific issues are, what the non-scientific issues are, and technical progress we have made towards addressing both of these problems at the same time.