Design Skills Subcommittee

- design
- create
- develop
- learn
What Is DSS?

The Design Skills Subcommittee is a group who will meet quarterly or on an as needed basis to work on:

- Design projects for WG
- Current design projects that come up in members’ departments when these individuals require assistance and/or inspiration
Why this group

- Administrative roles need to stay current within the parameters of MIT’s expectations. More of these roles demand design skills as part of their job descriptions.

- Many of us already perform as a designer in some capacity and are isolated from creative contacts, resources, and mentors.

- The science community, which many of us support, is in growing awareness of the need for visual communication.

- It is an unspoken requirement that an admin is tasked to maintain an ambassadorship role in upholding a visual brand of sophistication.
Who Are Our Members?

- Group members who are interested in gaining design experience and adding another skill set to their resume.
- Anyone who wants to improve his or her design skills.
- Anybody who would like to have a network of peers within MIT from whom they may seek feedback.
- Anyone who wishes to explore opportunities to leverage their creativity in their current role.
Interdisciplinary Research Groups

IBG-I: Design of Nanomaterials for Electrochemical Energy Storage and Conversion
Co-Leaders: Gerbrand Ceder & Yang-Shao-Horn
Senior Investigators: Angela Belcher, Kimberly Hess, Schwartz, Xiaoyi Bao, Carolyn A. Marzari, Carl Thompson

Research Goals:
Electrochemical devices such as Li batteries, and fuel cells that operate on hydrogen produced from solar energy, are promising technologies to buffer the supply and demand of energy, particularly for portable power and hybrid propulsion in transportation. This group seeks to advance the basic science of nanomaterials that governs lithium storage capability and electrolytic activity, and apply the fundamental understanding to rationally design materials at the nanoscale with enhanced characteristics, and enable the development of cost-effective and efficient electrochemical energy storage and conversion technologies.

IBG-II: Mechanomutable Heteronanomaterials
Co-Leader: Robert Cohen & Christine Ortiz
Senior Investigators: Markus Buehler, Peter Yang, Arumugam Manthiram, Erynn White

Research Goals:
This IBG is developing a new class of "mechanomutable heteronanomaterials," defined as materials possessing spatially localized and controllable nanoscale units of different types of materials that change their mechanical properties reversibly in response to an external stimulus. The long-term intellectual goals of this group are to develop a unique new class of responsive materials and to gain a fundamental understanding of the mechanoelectromechanical mechanisms present in this new class of materials.

IBG-III: Multimaterial Multifunctional Nano-Structured Fibers
Co-Leader: Yoel Fink & Maria Sola
Senior Investigators: Erik Alpay, Jinho Jeon, Stephen Johnson

Research Goals:
This group focuses on the development of a truly unique-to-MIT class of fiber materials systems that are composed of conductors, semiconductors (plastic and crystalline) and insulators with 10's of nanometers feature sizes, and on the investigation of the novel phenomena displayed by these unprecedented structures. The goal of this group is to demonstrate the integration of several independent devices placed at prescribed angular and radial positions inside a fiber.

Initiative Projects

Initiative-I: High Def Nano Materials: New Routes to 3D Hierarchical Nanostuctured Materials and Devices
Leaders: Brian Wardle
Senior Investigators: Robert Cohen, Michael Rubner, Nebozina Tuma

Research Goals:
This project will explore the use of molecularly assembled polymer and nanoparticles coatings to functionalize ultra-high porosity nanotube arrays arranged in microfluidic devices with a focus on the separation and identification of biological entities.

IBG-IV: Nanoscale, De fined, as, Materials, Possessing, Spatially, Localized, and, Controllable, Nanoscale, Units, of, Different, Types, of, Materials, That, Change, Their, Mechanical, Properties, Reversibly, in, Response, to, an, External, Stimulus.

IBG-V: Multimaterial Multifunctional Nano-Structured Fibers
Co-Leader: Yoel Fink & Maria Sola
Senior Investigators: Erik Alpay, Jinho Jeon, Stephen Johnson

Research Goals:
This group focuses on the development of a truly unique-to-MIT class of fiber materials systems that are composed of conductors, semiconductors (plastic and crystalline) and insulators with 10's of nanometers feature sizes, and on the investigation of the novel phenomena displayed by these unprecedented structures. The goal of this group is to demonstrate the integration of several independent devices placed at prescribed angular and radial positions inside a fiber.

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