

RA2: Materials and Manufacturing for Synergistic Effects

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MSEE

MATERIALS SCIENCE IN
EXTREME ENVIRONMENTS
UNIVERSITY RESEARCH ALLIANCE





RA2 Structure (Three Focus Areas)

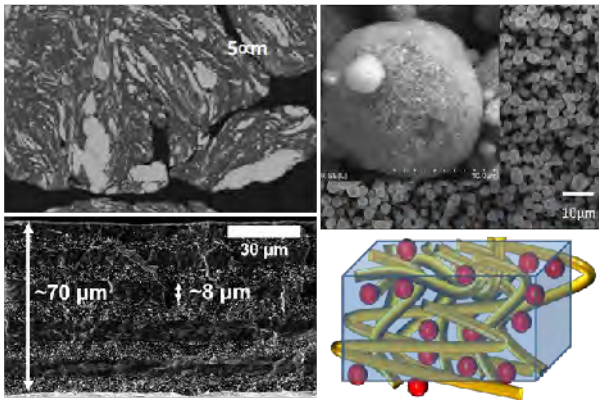
- FA1: Multimodal Shielding; FIU, Draper, JHU, UCR
 - Develop design rules through experiment and theory for HEMP mitigation.
 - Deferred during IPP due to funding constraints.



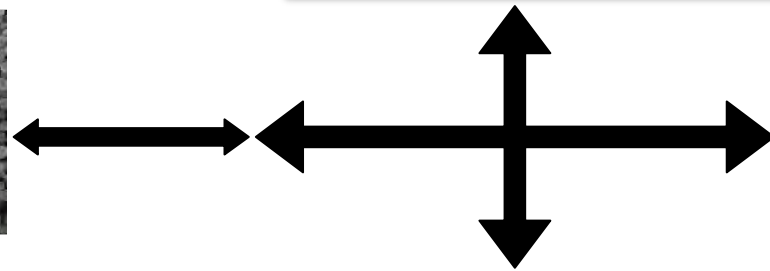
RA2 Structure

- FA2: Tailoring Chemistry via Materials; ARL, JHU, NJIT, SDSMT, UCR
 - Develop new energetic defeat systems through expertise in AM, RMs, HE, and energetic systems evaluation and modeling

New materials/Architectures



Advanced Diagnostics



- Structure-Function Relationships
- Model development and validation
- EM design rules

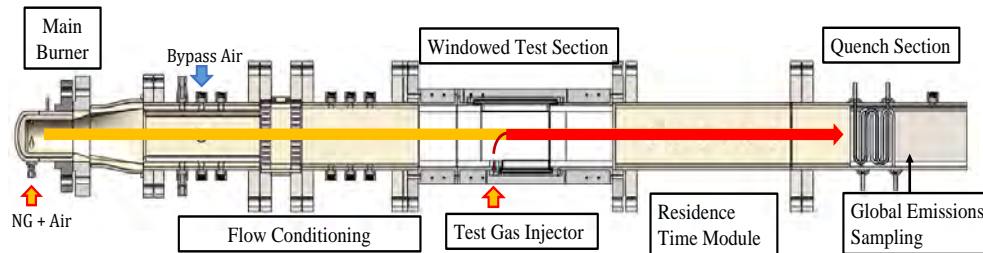
Molecular and Stochastic Models



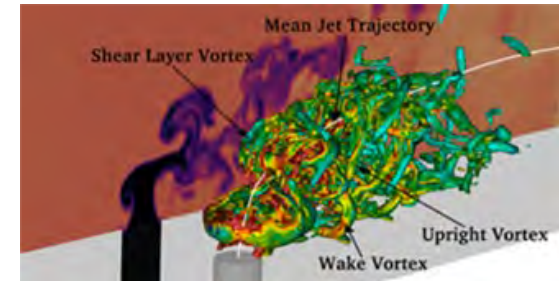
RA2 Structure

- FA3: Characterize and Predict Physical/Chemical Effects in Turbulent Environments; GT, JHU
 - Develop via experiment and simulation rapid screening tool(s) that encompasses all primary physical/chemical processes occurring in a fire ball.

In-Situ diagnostics of turbulent-chemistry interactions for model validation



Development of advanced turbulent reacting flow models





RA2 Personnel

RA2-FA2 (7 PI's)

Investigators and Collaborators	Position	Institution
Mike Zachariah	FA Coord	UCR
Ed Dreizin	PI	NJIT
Lori Groven	PI	SDSMT
Lorenzo Mangolini	PI	UCR
Betsy Rice	PI	CCDC ARL
Tim Weihs	PI	JHU
Bryan Wong	PI	UCR
Brian Barnes	Collaborator	CCDC ARL
Hergen Eilers	Collaborator	WSU
Mark Foster	Collaborator	JHU
Nick Glumac	Collaborator	UIUC
Todd Hufnagel	Collaborator	JHU
Tim Mueller	Collaborator	JHU
Raj Sinha	Collaborator	Craft Tech
Jeff Davis	Collaborator	DTRA

RA2-FA3 (3 PI's)

Investigators and Collaborators	Position	Institution
Suresh Menon	FA Coord	GIT
Jerry Seitzman	PI	GIT
Tim Weihs	PI	JHU
Ed Dreizin	Collaborator	NJIT
Nick Glumac	Collaborator	UIUC
Mark Shields	Collaborator	JHU
Raj Sinha	Collaborator	Craft Tech
Mark Foster	Collaborator	JHU
Bryan Wong	Collaborator	UCR
Mike Zachariah	Collaborator	UCR
Suresh Menon	Collaborator	DTRA



RA2 connections to other RAs (from IPP)

