

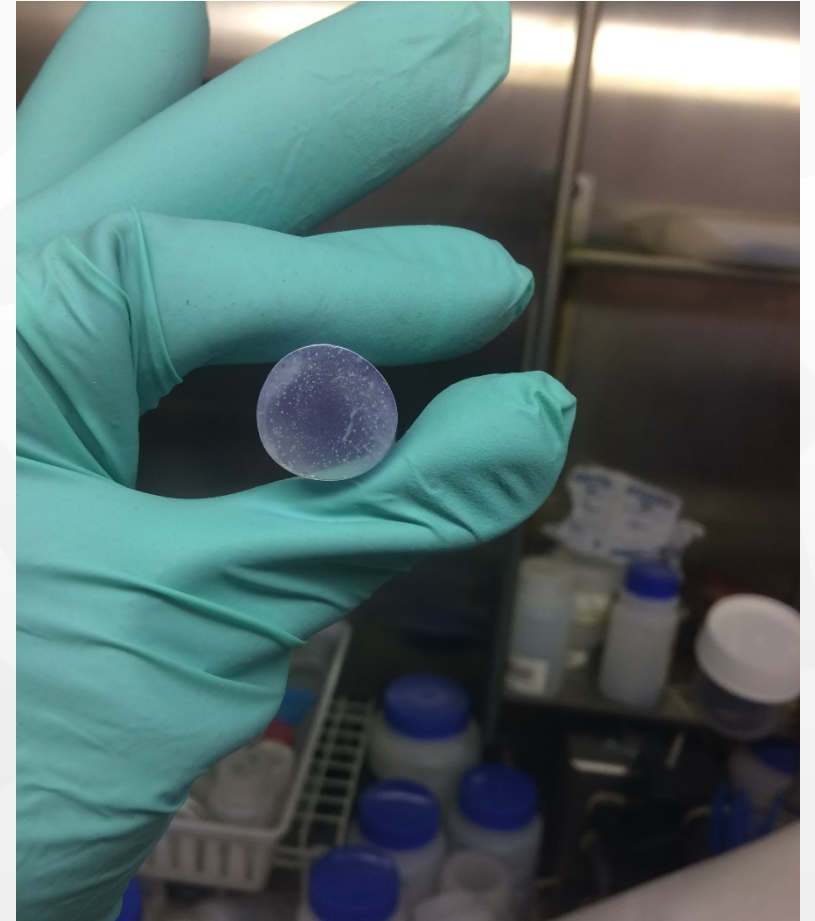
HOW TO GET 'FREE' MONEY FOR YOUR STARTUP

The Boston Entrepreneurs' Network
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Stacy Swider, Director, UMass Lowell SBIR Center of Excellence

About Me

- ▶ BS Materials Science MIT
- ▶ Over 25 years in industry and startups
 - Novel materials, semiconductor equipment
- ▶ Wrote many SBIR proposals in the arena of nuclear detection
 - About \$6M in funding over 6 years
 - Commercialized 2 products from this funding.
 - Always got the Phase II
- ▶ Now coach small companies through the SBIR/STTR process.
- ▶ Supporting the State by supporting YOU



The UMass Lowell Research Institute

- ▶ New Center out of UMass Lowell – similar to our robotics center (Nerve) or our medical device center (M2D2) but DOD-facing
- ▶ Opening a **Northstar Campus** innovation accelerator next summer, next to Hanscom AFB in Lincoln, MA
- ▶ Supporting the State and the University by facilitating contract research with DOD, continuing education, and small-business led innovation
- ▶ My office supports companies pursuing all types of SBIRs in the state of MA, and DOD-facing SBIRs nationally
 - Help find your Topic/Agency match
 - Review and edit proposals for content, clarity, cost

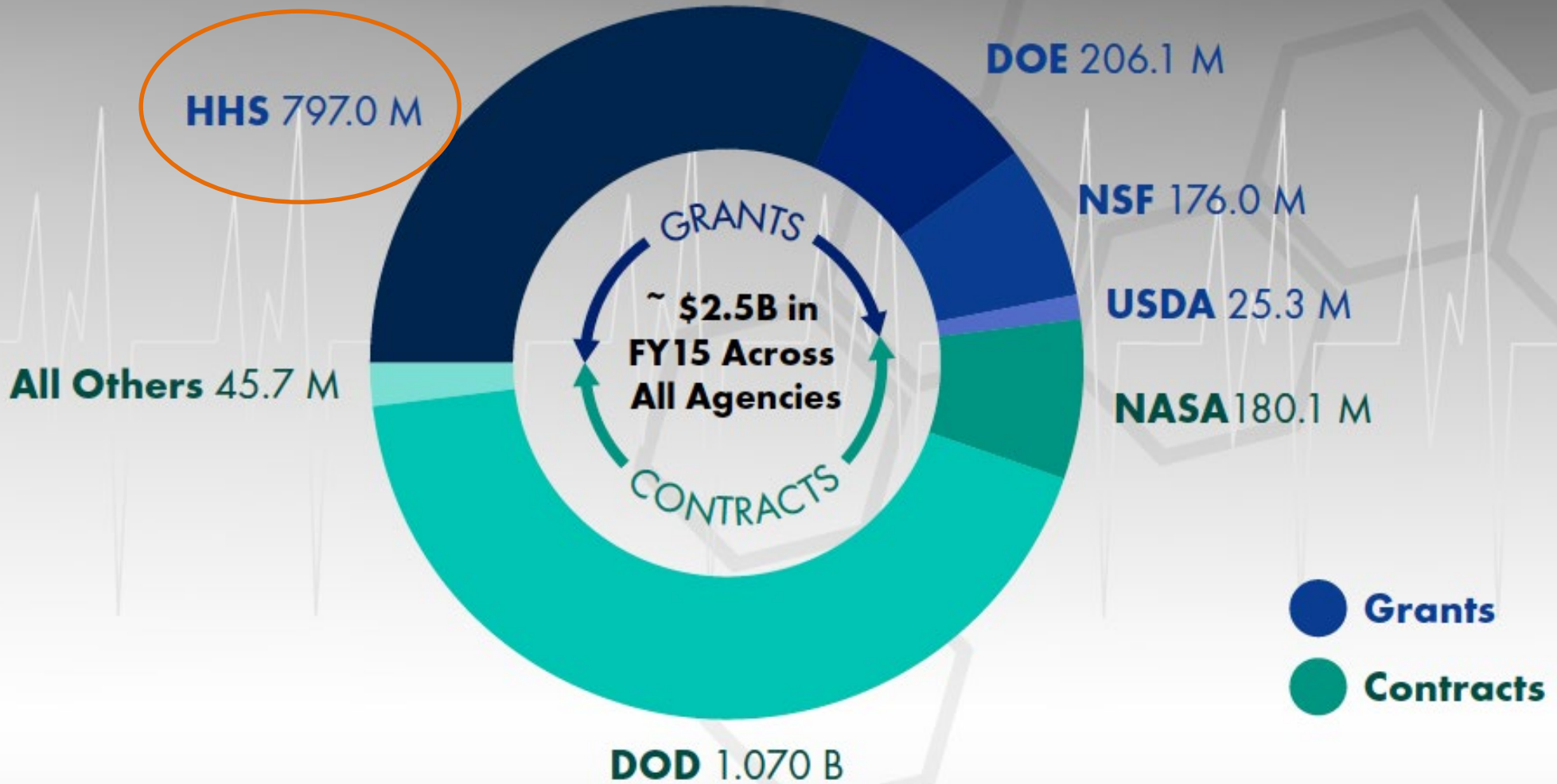
What are SBIRs?

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs

- Supports R&D and financing of cutting-edge technologies
- \$2.5 billion annual set aside (3.2% of Fed. Agency budgets)
- Agencies: DOD, NSF, NIH, DOE, DOT, NASA, ED EPA, USDA
- *Only small companies are eligible* = less than 500 people.
- 160,000 awards granted
- 10 patents per day
- \$150k Phase I
- \$1.2M Phase II
- www.sbir.gov



Biggest Players are DoD, HHS → DOE



FY15 Funding by Agency

How do SBIRs and STTRs Work?

- ▶ Agencies release Solicitations (Funding Opportunity Announcements) with Topics. Some yearly, some 3 times a year. **For inventions, not business models.**
- ▶ **Non-dilutive grants and contracts** -- no equity stake
- ▶ Somewhat fast, 3-year program
 - Typically 6-mo Phase I
 - Then 24-mo Phase II
 - Phase III is a commercialization Phase (funded from acquisition if DOD)
- ▶ Keep IP, mostly
 - You can patent inventions developed under SBIR for 20 years.
 - Government has some data rights. Be sure to note proprietary info going in.
- ▶ SBIR: Deeper pot of money
 - More awards, better chance at transition. Must do 66% of work.
- ▶ STTR: Idea developed at/with University or National Lab, with 40-60% \$ funding to the not-for-profit

Must be 51% US company and must spend award \$ in the US...It's taxpayer \$.

Example Topic Areas

▶ Health and Human Services (NIH, CDC, FDA)

- National Institute of Arthritis
- National Cancer Institute
- National Eye Institute

▶ Department of Energy

- Fossil Energy
- Fusion Energy Sciences
- Energy Efficiency & Renewable Energy

▶ National Science Foundation

- Advanced Manufacturing
- Biomedical technologies
- Quantum information technologies.

▶ Department of Defense

- Defense Health
- Cybersecurity
- Big Data

DOE PRE-RELEASE: Open
NEXT NSF DEADLINE: Dec 12
NEXT NIH DEADLINE: Jan 6
NEXT DOD Topic Release: Dec. 10



Typical Proposal / Execution

Phase	Description	Proposal Specs	Deliverables	Award	Time (PoP)
I	Determine scientific, technical, and commercial merit and feasibility	<ul style="list-style-type: none"> • 5-20 page limit • Cost volume • Commercialization report 	<ul style="list-style-type: none"> • Kickoff meeting • Progress reports • 6 mo. Review • Final report 	\$50,000 to \$250,000	6 mo.
II	The major R&D effort, prototyping and demonstration of most promising Phase I's	<ul style="list-style-type: none"> • 5-50 page limit • Cost volume • Commercialization report 	<ul style="list-style-type: none"> • Kickoff meeting • Progress reports • Samples, prototypes • Final report 	\$1,200,000	2 years
III	Commercialize the Phase II invention	Awards can be made using a sole-source process.	<ul style="list-style-type: none"> • Products 	DoD contract (if DOD) or outside funds	Un-limited

How to choose a Topic

Read, read, read

- ▶ Does it fit your product development goals, strategy, and funding timeline?
- ▶ Can your idea offer the following:
 - Responsive to Topic
 - Innovative, not routine
 - Has potential for Commercialization
 - Is propelled by a great Team
- ▶ Note: 66% of work must be done by the small company in Phase I, 50% in Phase II
 - R&D must be done in the US
 - STTR can be 60% university



Writing Your Proposal

1. Find appropriate Topic.
2. Research it a lot. Read all references.
 - *What does the customer want? Who are the incumbents?*
 - *Does it have true commercial potential? Can we compete?*
3. Call Topic Author and bounce your idea
 - *Listen carefully. Sometimes a Topic is just copy and paste.*
4. Pull together a great team
 - *Big companies can be sub-contractors*
 - *You can work with Universities in SBIRs too (not just STTRs)*
 - ***Look at your calendars. A proposal takes ~100 hours to prepare***
5. REGISTER ON GRANTS.GOV, PAMS, SAM etc. (this can take weeks!)
6. Read solicitation instructions carefully.
7. Write draft
8. Red team it! Get feedback. Edit, edit, edit.
9. Submit final proposal on appropriate website **1 day early.**

I. Identification and Significance of the Problem or Opportunity.

Scintillators offer robust and predictable radionuclide detection for a reasonable price, largely because they tolerate higher impurity levels than semiconductors. However, they rarely achieve better than 3% energy resolution (ER).¹ LaBr₃ is a high brightness scintillator with < 3% ER, but it is expensive because the crystal structure is asymmetric, and thus, hard to grow as large uncracked boules. This program seeks to answer the following questions: Can we achieve < 2.5% ER with a low cost (symmetric, easy to grow), low-intrinsic-background scintillator? Can this be achieved in a relatively compact volume, i.e., with stopping power similar to or greater than NaI?

Unambiguous and prompt discrimination of threat sources from benign sources is a function of the sensitivity, accuracy, and identification speed of available handheld radiation equipment. A number of studies have shown that false identification rapidly decreases in proportion to the energy resolution of the radionuclide sensor. Thus, high ER scintillators with high Z numbers that will be developed under this program will appreciably contribute to the efficient identification and interdiction of SNM.

This program is a collaborative effort between Fisk University and CapeSym. The objectives of this program are: 1) transfer technology related to novel Elpasolites materials purification and crystal growth developed at Fisk University to CapeSym for commercialization; 2) collaboratively identify and develop scintillators with the following qualities:

- i. Scalable & Low cost
- ii. Low intrinsic background
- iii. High energy resolution
- iv. High detection efficiency (comparable or greater than NaI(Tl))

Resources

SBIR notifications and support

- ▶ Agency email signups
 - Just type Agency and “sbir” in google
- ▶ SBIR.gov (managed by SBA)
- ▶ Grants.gov
- ▶ Fed Biz Opps: <https://www.fbo.gov/>
- ▶ Small Business Administration, MA (sba.gov)
 - Mass Dev Center: <https://www.msbdc.org/>
- ▶ LinkedIn
- ▶ SBIR newsletters
- ▶ Me: Stacy_Swider@uml.edu



THANK YOU!

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