



# Directed Energy Directorate SBIR Process

*Ardeth Walker*

*SBIR Program Manager*

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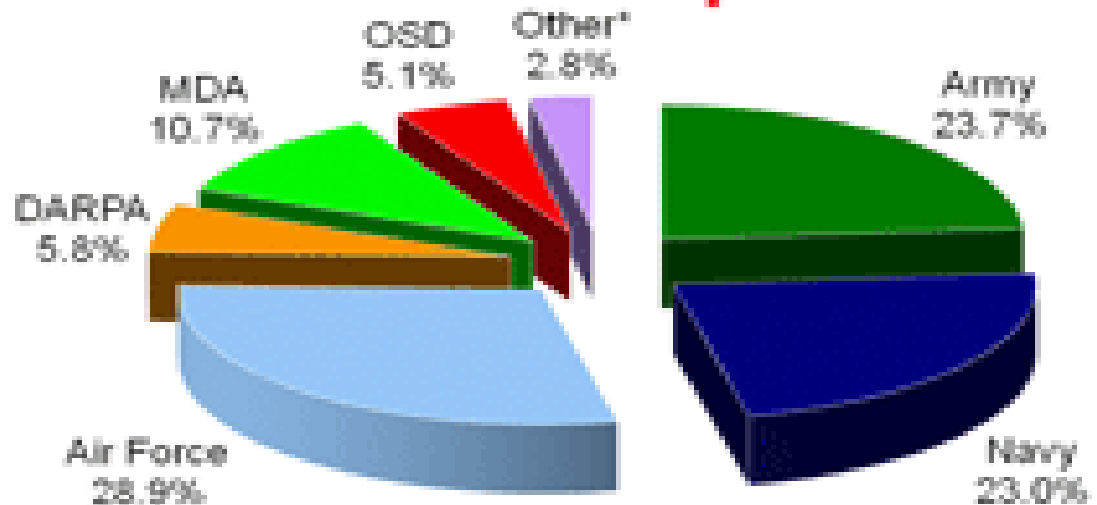
# What Is SBIR?

- **Small Business Innovation Research (SBIR)**
  - Established by Congress in 1982
  - Purpose – to harness innovative talents of our nation’s small technology companies for U.S. military and economic strength
- **SBIR funds early stage R&D at small technology companies**
  - Stimulate technological innovation by small business
  - Increase small business participation in meeting federal research and development needs
  - Increase the private commercialization of technology developed through SBIR R&D
  - Participation of socially and economically disadvantaged small businesses and woman-owned small businesses

# What Is SBIR?

- DoD FY09 SBIR budget approximately \$1.23B
  - 2.5% of extramural R&D funding
  - AF budget \$382M
- 12 participating components
  - AF, Army, Navy, MDA, DARPA, OSD,  
DTRA, NGA, DLA, DMEA, CBD, SOCOM

## DoD SBIR Components



Other includes: DTRA, SOCOM, CBD, NGA, DLA, DMEA



# The SBIR Program

	Description	SBIR \$ Threshold	Contract Period of Performance
Phase I	Determine the scientific, technical and commercial merit or feasibility of an idea or technology	\$100K*	12 months
Phase II	The principal R&D effort; expected to produce a well-defined, deliverable prototype	\$750K*	27 months
Phase II Enhancement	Address unforeseen technological barriers that would prevent a Phase II project from meeting its stated objective.	\$500K* Requires matching government non-SBIR funding	Extends contract up to 12 months
Phase III	Develop a prototype into a product for sale in military and/or private sector markets	No SBIR funds	

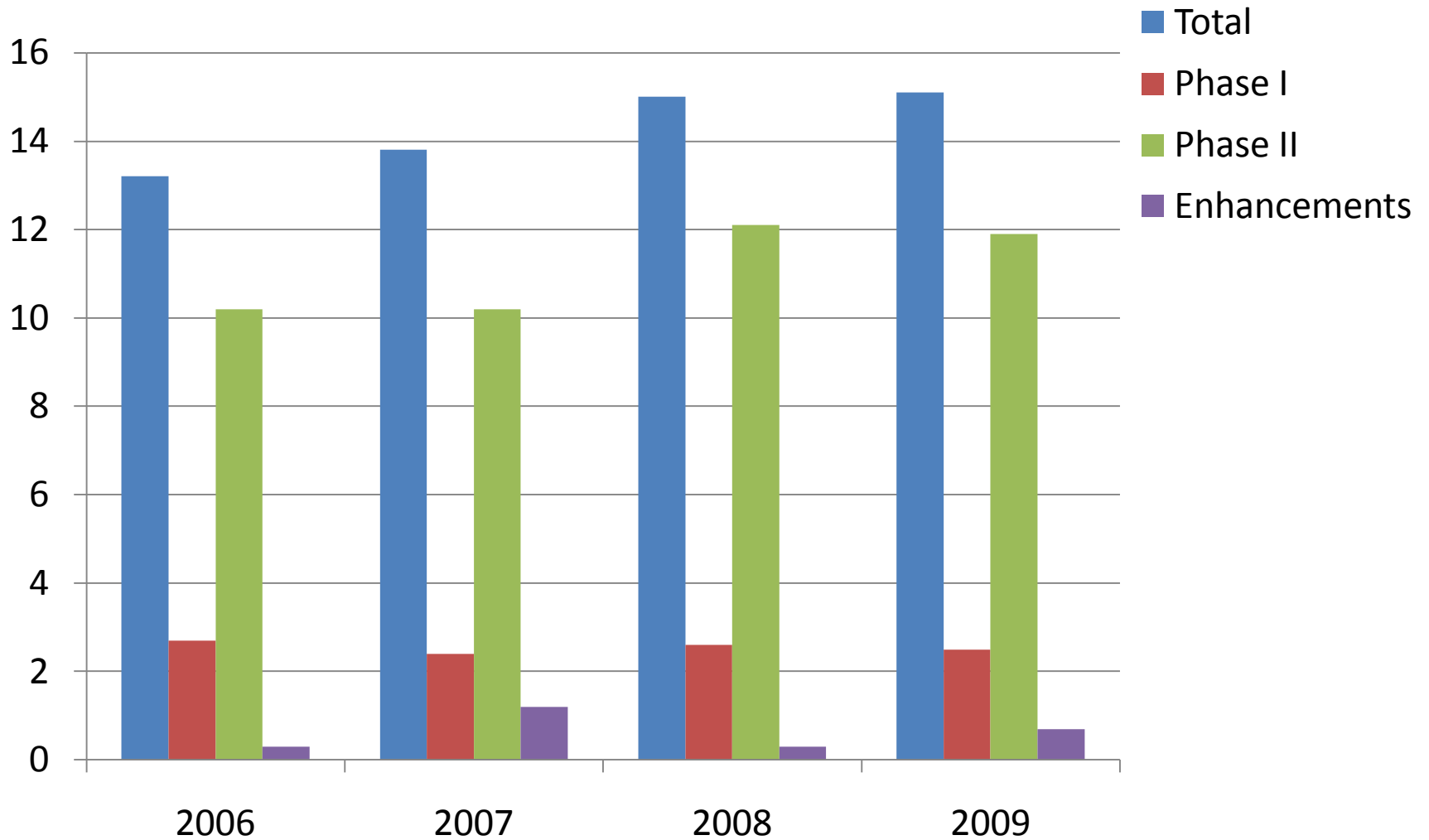


# Why SBIR?

- Increased funding for Directed Energy R&D
  - \$382M available for AF SBIRs
- Each SBIR topic equals \$1M - \$2M in additional research
  - 3 Phase I awards
  - 1 or more Phase II awards
  - Enhancements
  - SBIR Technology Transition Plan (STTP)
  - Commercialization Pilot Program (CPP)
  - Phase III
- One technical monitor's view
  - Researchers with different technical backgrounds often provide new approaches and new solutions
  - Future needs – contractors start formulating approaches and shake out problems ahead of program requirements
  - Research supporting multiple disciplines
  - Larger community



# RD SBIR Funding (in Millions)





# SBIR Funding

	2006	2007	2008	2009
Solicitation	6.1	7.1	7.3	8.3
Topics	11	11	7	10
<b>PI Awards</b>	22	24	22	26
PI Funds	\$2,678,684	\$2,395,710	\$2,197,481	\$2,489,033
Solicitation			8.1	
Topics			1	
<b>PI Awards</b>			3	
PI Funds			\$298,457	
Solicitation	5.1	6.1	7.1	7.3
Topics	12	11	11	7
<b>PII Awards</b>	18	14	16	11
PII Funds	\$10,281,576	\$8,129,515	\$8,429,903	\$4,125,000
Solicitation			7.3	8.1
Topics			7	1
<b>PII Awards</b>			10	2
PII Funds			\$1,500,000	\$1,141,728
Solicitation				8.3
Topics				10
<b>PII Awards</b>				14 (planned)
PII Funds				\$3,099,304
Solicitation		5.1	6.1	7.1
<b>PII Mortgage</b>		\$2,058,987	\$2,227,136	\$3,571,936
Enhancements	3	6	3	3
Enhancement Funds	\$220,000	\$1,253,206	\$305,212	\$699,999
Travel	\$740	\$10,082	\$2,615	
CP3 PI			\$99,999	
<b>Total</b>	<b>\$13,181,000</b>	<b>\$13,847,500</b>	<b>\$15,060,803</b>	<b>\$15,127,000</b>



# Topic Generation Process

- Begins with the identification of an R&D need
  - High priority technology problem areas where innovative solutions are sought from small businesses
- Begins with innovative approach (exploratory research); ends with a transition readiness level (TRL) of 4 to 6
- The end objective is to get quality projects to commercialization within DoD and/or private sector

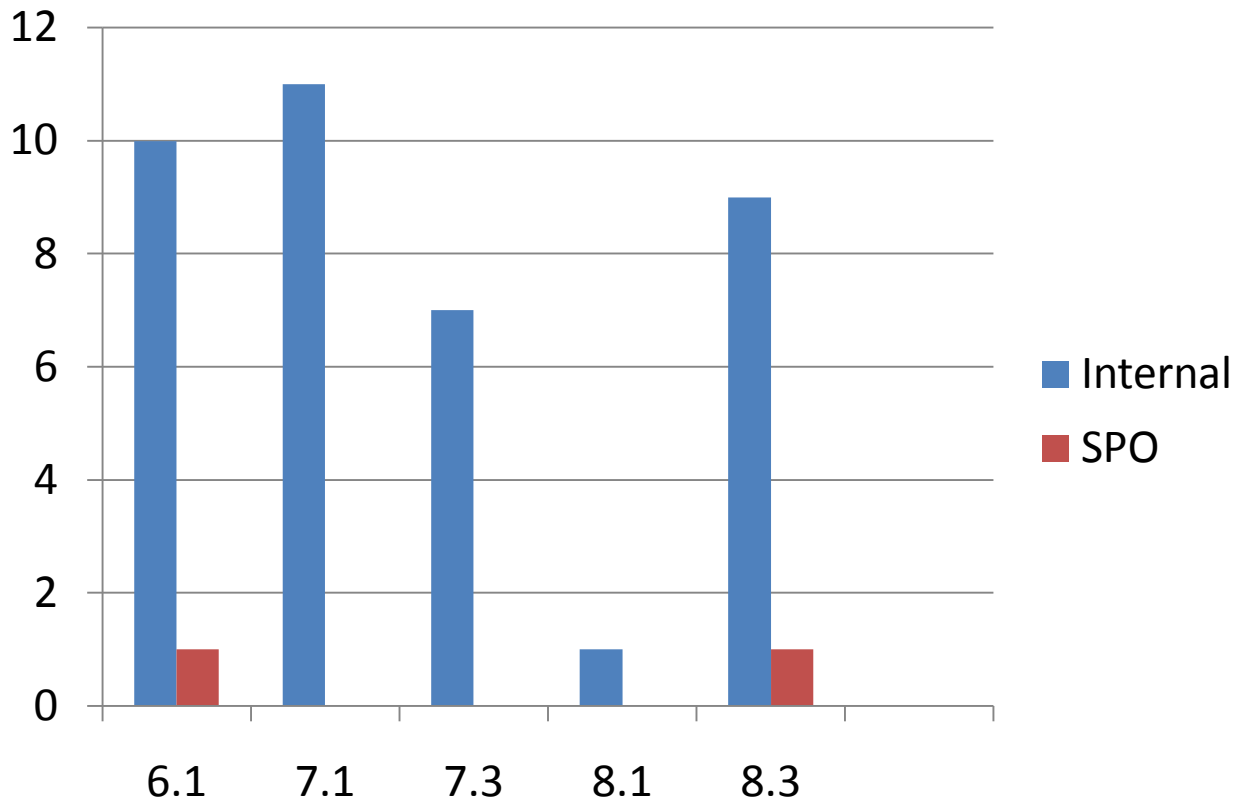




# Topic Generation Process

- **Topic Submission Module** - <https://www.afsbirsttr.net/tsm/>
  - Single collection point for AF topic ideas, working topics and formal topics
- **Ideas** - someone thinks an idea would make a valuable topic
  - Can be submitted by the author for PEO consideration
  - Can be ideas from the PEO for technical directorate (TD) consideration
  - Idea file always active
- **Working Topics** - 'ideas' selected by the PEOs or TDs
- **Formal Topics** - formally submitted to AFRL HQ
  - Prioritized, finalized, and submitted to DDR&E for review
- **DoD Solicitation Topic**
  - Passed DDR&E review
  - Published and ready to receive proposals
  - <http://www.acq.osd.mil/osbp/sbir/solicitations/index.htm>

# RD SBIR Topics





# Topic Generation Process – External

- Product centers identify technology needs
  - Centers develop topics they wish to sponsor
  - Centers/AFRL identify topic authors/TPOCs
- AFRL and AF program offices have designated POCs to assist with topic development and technology transition
- Topic generation: July – January
- **AFRL TD authors work with center POC to develop topic**
- The team – AFRL scientists and engineers and the sponsor representative manage the topic related activities
- The TD adds the product center topic to the internal allocation
  - Enriches the TD's SBIR program
  - Approximately \$1M in additional research funding per topic



# Topic Generation Process – External

## AAC – Air Armament Center, Eglin AFB

- Topic generation and TPOC assignment complete NLT December
- 5 + 2 back-up topics
- SBIR technology needs
  - Small weapon, moving targets kill
  - Low collateral damage
  - High speed weapons
  - High energy laser weapons
  - High power microwave weapons
- POCs
  - James Schoeneman\*
  - Gavin Tovrea
  - Marsha Palmer



# SBIR/STTR Topic Generation Process – External

## ASC –Aeronautical Systems Center, Dayton OH

- Topic generation begins August; TPOCs identified by September
- 30 + 7 back-up topics
- SBIR technology needs
  - Advanced sensor suite (EO/IR) to locate, identify targets of opportunity
  - Enhanced situational awareness
- POCs
  - Chris Klahn\*
  - Darryl Stimson
  - Rachel Doster



# **SBIR/STTR Topic Generation Process – External**

## **SMC – Space and Missile Systems Center – Los Angeles AFB**

- Internal topic call in October; topics due mid November
- 40 + 7 back-up topics
- SBIR technology needs
  - Directed energy topics
  - Traveling wave tube amplifier
- POCs
  - Karim Chaudhry\*
  - Mike Bowker



# SBIR/STTR Topic Generation Process – External

## ESC – Electronic Systems Center, Hanscom AFB

- Topic generation begins September; topics selected and TPOCs identified by October; final down select in December
- 15 + 5 back-up topics
- SBIR technology needs
  - Technologies supporting predictive battlespace awareness: combat ID
- POCs
  - Phil Petitt\*
  - Joe Minior
  - Jeff Park



# Topic Generation Process – Internal

- Establish an account on the TSM <https://www.afsbirsttr.net/tsm/>
- Enter your idea in the Idea Module
  - The Idea Module is active every day
- Official topic call issued in December
  - Internal topic allocation
    - 5 + 1 back-up topic per directorate (09.3 solicitation)
- Topic prioritization in early February
  - RD chief scientist selects topics and back-ups from list
- Selected topics
  - Topic author completes a literature search (AFMC Form 14)
  - SBIR Office reviews for format and obtains OPSEC and PA release
  - Topic author marks topic as “final”
- Topics sent to DDR&E for review





# Topic Generation Process

## DDR&E Review

- DDR&E 1<sup>st</sup> review – late April - late May
- Topic rewrite period – early June
- **Topic author (or representative) must be available to revise topic**
  - Responds to DDR&E comments
  - 9 days for rewrites or rebuttal
- DDR&E 2<sup>nd</sup> review – mid to late June
- Integrated Review Team (IRT) – early July
- Components finalize topic numbers – mid July
- Topics published as X.3 solicitation – late July



# Other Topic Opportunities

## Missile Defense Agency

- Support and benefit the Ballistic Missile Defense System (BMDS)
- 8 research areas
  - **Directed Energy** – technology to insert in air and ground weapons systems for BMDS
  - **Space** – enable/improve operation of BMDS elements in the long-term orbital environment. Over-arching requirement is to survive and operate in orbit
  - **Interceptor** – increase capabilities and effectiveness of interceptors for BMDS
  - **Manufacturing and Producibility** – focus on manufacturing, assembly and production of all levels of BMDS supply chain
  - **Radar** – innovative/enhanced technology development or “game changing” technology to improve radar functionality, packaging and affordability
  - **C2BMC** – technologies support command, control, battle management and communications
  - **Modeling and Simulation** – innovations in modeling and simulation to support development and testing of BMDS
  - **Innovative Concepts/Special Focus Projects** – “game changing” concepts, superlattice materials, technologies supporting the space-based industrial counsel initiative



# Other Topic Opportunities

## Office of the Secretary of Defense

- The Deputy Under Secretary of Defense (Science & Technology) sponsors various themes for each solicitation
- Air Force participates in the X.3 solicitation
- Service laboratories act as OSD agents
  - OSD sends funds directly to AFRL TD
  - Local contracting office awards the contracts
  - Technical monitor is from the local TD
  - Technical monitors brief OSD on the Phase I company's progress
  - Part of the decision making team for Phase II selections
- OSD SBIR program manager – Teresa Puretz, 703-693-0458



## 09.3 RD Draft Topics

Topic #	Title	Author
AF093-008*	Components and Compact Packaging of Fiber Laser Amplifier Arrays	Richard Berdine
AF093-009	Measurement of Laser Irradiance on Target for Directed Energy Weapons	David Medina
AF093-010	Spatial-Temporal Control Applied to Atmospheric Adaptive Optics	Dan Herrick
AF093-011	Conformal High Energy Laser Weapon System	Frank Eaton
AF093-012	Advanced Estimation and Electro-Optical Data Fusion Strategies	Moriba Jah
AF093-013	Autonomous and Adaptive Technique for RF Effects Data	Peter Finlay
AF093-014*	Advanced Dielectric Insulation Techniques for High Voltage Pulsed Power Systems	Michael Haworth
AF093-015*	UAV Flight Management System Recording Solution	Don Andrews
AF093-016*	Develop Small, Self-Contained Radio Frequency Field Sensor	Peter Finlay



# Phase I – Pre-Solicitation

- Topics are released to the public on the solicitation website:  
<http://www.acq.osd.mil/osbp/sbir/solicitations/index.htm>
- Pre-Solicitation: late July – late August
- **Topic author is the single point of contact with small business**
  - Author's name and contact information are listed
  - Clarifying questions may be asked
  - **Authors should respond in a timely manner**



# Phase I – Solicitation

- Solicitation: late August – late September
- Direct communication is not allowed
  - Questions submitted to [SBIR/STTR Interactive Topic Information System \(SITIS\)](http://www.dodsbir.net/sitis) at [www.dodsbir.net/sitis](http://www.dodsbir.net/sitis)
  - **Topic author responds to questions from small businesses**
- Proposals submitted electronically at <http://www.dodsbir.net/submission/>
- View preparation instructions, program description, definitions, evaluation criteria, and contracting information
- Proposals due 6:00 a.m. Eastern time closing day of solicitation



# Phase I - Evaluation

- Evaluation website: <https://www.afsbirsttr.net/afevaluations/>
- Evaluation period: late September - late October
- **Lead evaluator (usually topic author)**
  - Leads the team in the review and evaluation of all proposals
  - Evaluates topics
    - Use “Independent Evaluation Form” to complete own evaluation
    - Use “Evaluation Form” to summarize team’s evaluations
  - Prepares debriefing worksheet
    - Supports award decision
    - Debrief is returned to small business
      - Provides offerer feedback
  - Attends source selection
- **Source Selection: late October**
  - Chief scientist
  - **Lead evaluators**
  - Technical advisors



# Phase I - Award

- Start –up phase
  - Explore technical merit/feasibility of an idea to meet topic objective
  - \$100K\*
  - 12-month fixed price contract
- SBIR Office role
  - Prepare purchase request package
    - Contract number and JON
    - DTIC number
    - Buyer
    - AF Form 813 (Request for Environmental Impact Analysis)
    - AFRL Form 4 (Initial Safety Assessment)
    - Determine citizenship of key personnel
      - Set up export control review meeting (TPOC and foreign disclosure officer)
    - Information for the Contracting Officer
    - AF 3215 (IT/NSS Requirements Document)
  - Provide R&D case file information to TPOC
  - Prepare and track funding documents
  - OPSEC and PA review of summary reports





# Phase I – Award

## TPOC's Role

- Conduct foreign disclosure/export control review (if necessary)
- Conduct kick-off meeting
- Establish and maintain R&D case file
- Oversee contractor's technical progress
- Approve invoices in Wide Area Work Flow (WAWF)
- Safeguard proprietary information
- Identify and report contract specific information
- Review progress and recommend/non-recommend for Phase II invitation
- Ensure Phase I final report is reviewed and published
- Review summary report for posting to AF SBIR/STTR Virtual Shopping Mall at [www.sbirsttrmall.com](http://www.sbirsttrmall.com)
- Determine transition readiness level (TRL)
- Submit transfer letter for any reassigned contract



## Phase II - Recommendation

- Phase II contracts are only awarded to successful Phase I winners
- Phase II proposals are by invitation only
- Companies invited approximately 6 months after Phase I award
  - **TPOC prepares quad chart with recommendation for Phase II invitation**
  - Chief scientist approves recommendations
  - SBIR Office initiates invitation - late July
  - Small businesses have 30 days to submit proposal - late August



# Phase II - Evaluation

- Evaluation website: <https://www.afsbirsttr.net/afevaluations/>
- Evaluation period: September
- **Lead evaluator (usually Phase I technical monitor)**
  - Forms the evaluation team
  - Leads the team in the review and evaluation of all proposals
  - Evaluates topics
    - Uses “Independent Evaluation Form” to complete own evaluation
    - Uses “Evaluation Form” to summarize team’s evaluations
  - Prepares debriefing worksheet
    - Supports award decision
    - Debrief is returned to small business
      - Provides offeror feedback
  - Attends source selection
- Source Selection: late September
  - Chief scientist
  - **Lead evaluators**
  - Technical advisors



# Phase II - Award

- Prototype development phase
  - \$750K\*
  - 27 month cost plus fixed fee contract
- SBIR Office role
  - Prepare purchase request package
    - Contract number and JON
    - DTIC number
    - Buyer
    - AF Form 813 (Request for Environmental Impact Analysis)
    - AFRL Form 4 (Initial Safety Assessment)
    - Determine citizenship of key personnel
      - Set up export control review meeting (TPOC and foreign disclosure officer)
    - Information for the Contracting Officer
    - CDRLs (Contract Data Requirements List)
    - AF 3215 (IT/NSS Requirements Document)
  - Provide R&D case file information to TPOC
  - Prepare and track funding documents
  - OPSEC and PA review of summary reports/success stories



# Phase II – Award

## TPOC's Role

- Quantitative cost evaluation
- Conduct foreign disclosure/export control review (if necessary)
- Conduct kick-off meeting
- Establish and maintain R&D case file
- Oversee contractor's technical progress
- Approves invoices in Wide Area Work Flow (WAWF)
- Safeguard proprietary information
- Identify and report contract specific information
  - Potential overruns
  - Period of performance extensions
- Apply for Phase II extension or enhancement if appropriate
- Ensure Phase II final report is reviewed and published
- Review summary report for posting to AF SBIR/STTR Virtual Shopping Mall at [www.sbirsttrmall.com](http://www.sbirsttrmall.com)
- Determine transition readiness level (TRL)
- Ensure contractor submits a success story
- Submit transfer letter for any reassigned contract



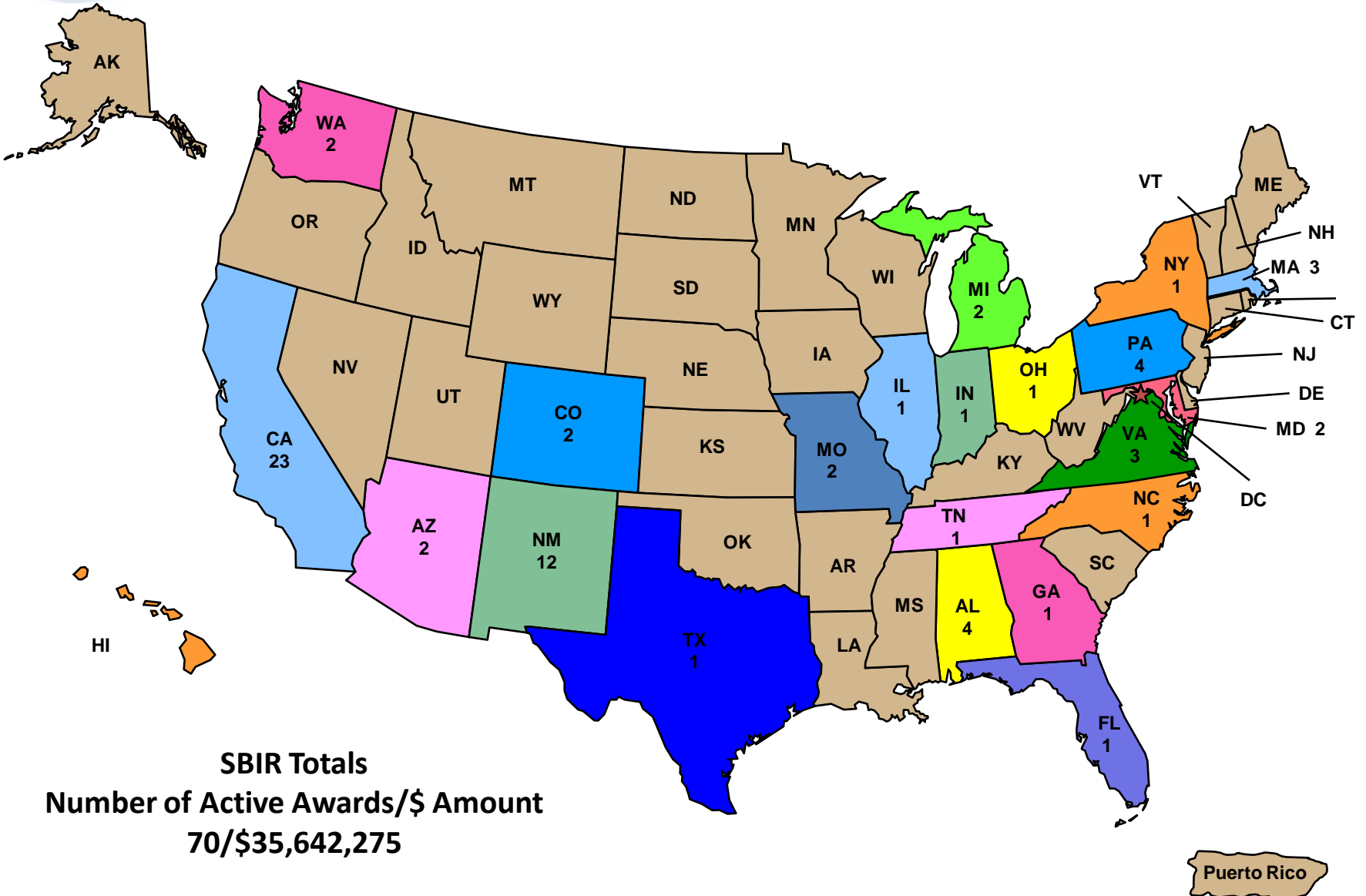
# Enhancements and Extensions

- Enhancements address new/unforeseen technology barriers
- Enhancement call – April
  - TPOC initiates request by submitting enhancement questionnaire
  - TPOC confirms availability of non-SBIR government funding
- A limited number of Phase II efforts may be invited
  - Chief scientist prioritizes enhancement requests
  - SBIR Office initiates invitation(s) based on funds available
  - Small business submits enhancement application at [www.dodsbir.net/solicitations](http://www.dodsbir.net/solicitations)
  - SBIR and non-SBIR (mission) matching government funds
    - \$250 K - \$500K of SBIR funds
  - Extends contract up to 1 year
- Extensions seek to improve the maturity level of the technology
  - SBIR or non-SBIR (mission) government funds
  - SOW and funding submitted as required

# RD SBIR Awards



# Active RD SBIR Awards by State



**SBIR Totals**

**Number of Active Awards/\$ Amount**

**70/\$35,642,275**





# 06.1 Phase II Awards

Firm	Proposal Title
Photon-X, LLC	Compact and Reliable Radiation Hardened High Power Optical Amplifier for Aerospace Environment
SciberQuest, Inc.	Structured Multi-Resolution PIC Code for Electromagnetic Plasma Simulations
Tech-X Corporation	New Boundary Algorithms for Next-Generation Simulation and Design of High-Power Microwave Devices
Physical Optics Corporation	Solid-State Mini-Marx Generator
Delcross Technologies, LLC	Time-Domain BLT Solver for Electromagnetic Coupling to Cables and Circuits
Aculight Corporation	High-power transportable fs fiber laser
Innovative Technology Applications Co., L. L. C.	Optical Propagation Improvement System (OPIS)
MZA Associates Corporation	Adaptive Controls for Aero-Optics Compensation
PHDs Co.	Position-sensitive identification and tracking system for neutron-induced detection and location of explosives at large distances POSITRACK
Galt LLC	Increased Range Neutron Response High Explosives Detection
G A Tyler Assoc. Inc. dba the Optical Sciences Co.	A Technique for Estimating the Strength of Turbulence and Inner Scale along an Optical Propagation Path
Los Gatos Research	Cavity-Enhanced Diagnostic Instrumentation for EOIL Applications
Polaris Sensor Technologies	Synthetic/Sparse Aperture Imaging Techniques



# 07.1 Phase II Awards

Firm	Proposal Title
Passat Inc.	A Self-Focusing Rayleigh Beacon for the Compensation of Aero-Optic Turbulence in Airborne High Energy Laser Systems
MZA Associates Corporation	Aero-Optics Beacon
Grassmere Dynamics	Advanced Analog Micro-lens Technology
MZA Associates Corporation	Design, Analysis, and Optimization Environment for Directed Energy Systems
PC Krause and Associates	Design, Analysis, and Optimization Environment for Directed Energy Systems
Aculight Corporation	Fiber-based, high peak power mid-infrared source
Q Peak, Inc.	Cr:ZnSe Ultrafast, High-Power, Mid-IR Source
AgilOptics	Low-Cost Compact Adaptive Optics Systems
The Care'n LLC	High Voltage Explosive Flux Compression Generators
Enig Associates, Inc.	Multiphysics Modeling of High Voltage Explosive Flux Compression Generators
Optical Physics Company	Low Mirror Count Tactical HEL Beam Control Architecture
MZA Associates Corporation	Tactical HEL Weapon Alignment System Architecture Options and Trade Offs
Wave Computation Technologies	A New Hybrid Method for High-Order EM-PIC Simulations
Tau Technologies LLC	Fast Synthetic Scene Generation for Directed Energy Applications
IRFLex Corporation	Novel Fiber Laser for direct lasing in the Mid-Infrared
Physical Optics Corporation	Real-Time Holographic-Optical-Element-Based Damage Assessment for HEL Weapon Systems
Coherent Applications, Inc.	Laser Remote Sensing for HEL Damage Assessment
Physical Optics Corporation	Polarization Diversity in situ Lidar for Cloud Particle Mapping



## 07.3 Phase II Awards

Firm	Proposal Title
MetroLaser, Inc.	Adaptive Optics System for Mitigating Deep Atmospheric Turbulence Effect
Optical Physics Company	Green Function Inversion for Deep Atmospheric Turbulence Compensation
Nutronics, Inc.	Beacon Modulation Tomography for Compensation in Deep Turbulence Phase 2
Spire Corporation	Cryogenic Diode Laser Array Pump for High Power YAG Lasers
Directed Energy Solutions	Cryogenic High Power Laser Pump Diodes
Digital Fusion Solutions Inc.	Integrated wide-bandgap semiconductor photoconductive switch with a terahertz antenna
Sci-Eng Solutions, LLC	Highly Directional Photo-Switched Terahertz Source
Applied Physical Electronics	Non-Linear Transmission Line Microwave Source
Nutronics, Inc.	Integrated Laser Beam Control
Applied Pulsed Power, Inc.	Solid State Switch for high voltage sub-microsecond pulsed power
Alameda Applied Sciences Corporation	A fast pulsed, high flux neutron source for remote 3D imaging
Sci –Eng Solutions, LLC	Photon Initiated Thyristor Switches



# 08.1 Phase II Awards

<b>Firm</b>	<b>Proposal Title</b>
Accurate Solutions in Applied Physics LLC	3D Magnetic Field Modeling
Computational Sciences, LLC	Accurate and Efficient Computation of Electromagnetic Fields and Waves over Unbounded Regions in 3D



# 08.3 Phase I Awards

Firm	Proposal Title
Intelligent Optical Systems	High-Power Solid-State Laser Simulator
Arete Associates	Modeling of High-Average-Power Solid State Lasers
MZA Associates Corporation	Modeling of High-Average-Power Solid State Lasers
Sound Answers Inc	Improved Analysis Techniques for Characterizing Jitter in Beam Control Systems
MZA Associates Corporation	Improved Analysis Techniques for Characterizing Jitter in Beam Control Systems
Optical Physics Company	3-D Turbulence Measurement System based on Green`s Function Inversion
Nutronics, Inc.	Image-based Turbulence Monitor
G A Tyler Assoc. Inc	Atmospheric Characterization for Laser Propagation
OptiGrate Corporation	Coherent beam combining of fiber lasers by volume Bragg gratings
Libration Systems Management, Inc.	Fiber Laser Beam Combining
Optical Physics Company	Innovative, Lightweight Methods For Thermal Management of HEL Mirror Subsystems
Physical Optics Corporation	Thermostabilization of Adaptive Optics
Brock Technologies, Inc.	Unmanned Aerial System with Modular Payload Bays and Payload Interfaces
Navmar Applied Sciences Corp.	Low Cost Intelligence, Surveillance and Reconnaissance, Unmanned Aerial Vehicle
Malaney Aircraft Corporation	Low Cost Intelligence, Surveillance and Reconnaissance, Unmanned Aerial Vehicle
Advanced Ceramics Research	Low Cost Intelligence, Surveillance and Reconnaissance, Unmanned Aerial Vehicle
Strategic Polymer Sciences	Compact, Submicrosecond Discharge Pulsed Power Capacitors
TPL, Inc.	Compact, High Power Capacitors Based on Moldable Nanocomposite Dielectrics
TRS Ceramics, Inc.	Compact, Submicrosecond Discharge Pulsed Power Capacitors
nGimat Co.	NanoEngineered Tunable Dielectric Materials for High Frequency Applications
Agiltron Corporation	Tunable Dielectrics for Gigahertz, Pulsed Power Applications
Scientific Applications & Research Assoc., Inc.	RCS-Reduction and EMI-Suppression Technology for HPM Antennas
BerrieHill Research Corp.	High Power Microwave Frequency Selective Surfaces
Prime Research, LC	Non-Resonant Frequency Selective Surfaces for High Power Applications
Nutronics, Inc.	Micro Adaptive-optics Unit
MZA Associates Corporation	Innovative UAV-to-satellite communication link concepts using adaptive optics



# Missile Defense Agency Program RD Managed MDA Contracts

<b>Firm</b>	<b>Title</b>
Applied Technology Associates	Space Qualified, Fast Steering Mirror
Scientific Applications & Research Associates	Advanced Hemispherical Reflectance Measurement of Heated Materials
CSA Engineering	Global Jitter Control Design for Integrated Opto-Mechanical Systems
Tempest Technologies	Innovative Jitter Control Algorithms
Applied Technology Associates	High Bandwidth Fast Steering Mirror



# Phase III

- Phase III is a principal objective of the SBIR program and a means for the DoD to realize value from SBIRs
- Phase III is any work that derives from, extends or logically concludes efforts performed under prior SBIR funding
  - Oriented toward commercialization
  - Successful Phase I or II innovations move into continued development, maturation and eventually into the marketplace
- Characteristics/requirements of Phase IIIs
  - Funded by non-SBIR funds
  - SBIR technical data rights extend to Phase III
  - Phase III contracts awarded without further competition
  - DoD must show preference for SBIR-funded technologies in Phase III
  - No limit on number, duration, type or dollar value of Phase III award
  - No limit on time elapsed between Phase I or II and the Phase III award
  - Small business size limits do not apply
  - Phase III contracts must be reported to Congress



# Phase III

- Physics, Materials and Applied Mathematics Research
  - “Non-Lethal Laser Induced Plasma Deterrent”
  - Path – traditional PII to a Phase III
  - RD TPOC – William Latham
  - External funding – Joint Non-Lethal Weapons Directorate, USMC
  - Improve the non-lethal stimuli of light, sound, shock waves over an initially small area; to be increased in future phases
  - Funding FY09 to add work
- Rini Technologies
  - “Liquid Nitrogen Spray Cooling for Cryogenic Solid State Lasers”
  - Path – Phase I to a Phase III
  - RD TPOC – William Latham, Sean Ross
  - Internal funding – RDLA
  - Prototype LN<sub>2</sub>, evaporative spray cooling system to cool AFRL’s existing thin disk laser system





# Key Personnel

## Air Force Program Office

Title	Name
<b>AF SBIR/STTR Program Manager</b>	<b>Augustine Vu</b>
Assistant AF Program Manager	Susan Smith
Commercialization Pilot Program	Richard Flake
MacAulay-Brown, Program Manager	Andy Lagrone
Air Force Office of Scientific Research STTR Program Manager	Raheem Lawal
Shopping Mall/Success Stories	Larry Mortsolf
Computer Support	Katie Duffy
Computer Support	Pam Ruhland



# RD SBIR Team

## Directed Energy Directorate

Title	Name
Director	Susan Thornton
Chief Scientist	William Baker
Chief Engineer	Cynthia Kaiser
Deputy Chief Scientist	Major James Jeter
Senior Research Physicist	David Price
RD SBIR Program Manager	Ardeth Walker
Assistant Program Manager	Peggy Hancock
Assistant Program Manager	Jo Thwaites
RD Chief of Contracting	Gail Hamblet
SBIR Contracting Liaison	Susan Thorpe



# RD SBIR Support Team

## Directed Energy Directorate

<b>Title</b>	<b>Name</b>
Budget Analyst	Anthony Abeita
Foreign Disclosure Officer	Alvin Sullen
STINFO & Case File Manager	Billye Archunde
Environmental	Michelle Hedrick
Safety	Larry Knudson
OPSEC	Iris Puentes
IT Requirements	Kristen Leeds
DTIC	Marv Sommers
DTIC	Valerie Valdez



# Key Personnel

## Missile Defense Agency Program

<b>Title</b>	<b>Name</b>
<b>MDA SBIR/STTR Program Manager</b>	<b>Mike Zammit</b>
Program Management Support	Matthew Briston
Program Management Support	Jangela Shumskas
Program Management Support	Hannah Choi
Air Force Service Lead	Ardeth Walker
Army Service Lead	Dale Perry
Navy Service Lead	Cheryl Reckeweg
MDA Contracting	Heather Land
ARMY Contracting	Christina Barnhill



# MDA Research Area Leads

Research Area	Lead
Space Technology	Kevin Slimak
Manufacturing & Producibility	Doug Deason
Radar Technology	Marty Sargent
Modeling & Simulation	Carol Barclay
C2BMC	Joey Wang
Directed Energy	Don Snyder
Interceptor Technologies	Teiji Epling
Innovative Concepts & Special Focus Projects	TBD



# AF SBIR Websites

[https://livelink.ebs.afrl.af.mil/livelink/lisapi.dll/open/RVRD\\_SBIR](https://livelink.ebs.afrl.af.mil/livelink/lisapi.dll/open/RVRD_SBIR)

Intranet link to RD, RV and MDA SBIR information and calendar of events

<http://www.sbirsttrmall.com/Portal.aspx>

The shopping mall provides a means for disseminating information about current events, program terminology and procedures, and organizational points of contact.

<https://afsbirsttr.net/tsm> Login and password required

The link to the Air Force Topic Submission Module, it is a source of Air Force topic ideas and formal topics. Ideas can be submitted either 1) by the technical directorates for product centers' consideration or 2) by the product centers for technical directorates' consideration.

<https://www.afsbirsttr.net/afevaluations> Login and password required

The Air Force Proposal Evaluation site provides options for completing evaluations for both Phase I and Phase II proposals.

Department of Defense



# Other SBIR Websites



## Department of Defense (DoD)

<http://www.acq.osd.mil/osbp/sbir/>

This DoD site provides a list of current and previous solicitation information as well as detailed information on conferences, parameters of the SBIR program, guidance on how to submit a proposal, and abstracts of prior award winners.

## Missile Defense Agency (MDA)

<http://www.mdasbir.com/>

This site is dedicated to the MDA SBIR/STTR program and provides small businesses with guidance for applying to the MDA SBIR/STTR and DoD SBIR/STTR solicitations.