

STELLAR TEAM

NOBLE MISSION



**Missile Defense Agency
University Innovation Summit
March 3 & 4th, 2021**

***Embracing Innovation, Science and
Technology to Outpace the Threat***

STEM Outreach Program Office Overview

**Briefer: Ms. Jacqueline Martin
STEM Outreach Program Office Lead**

Approved for Public Release
21-MDA-10707 (23 Feb 21)



STEM Outreach Program Office

STEM Outreach Program Office

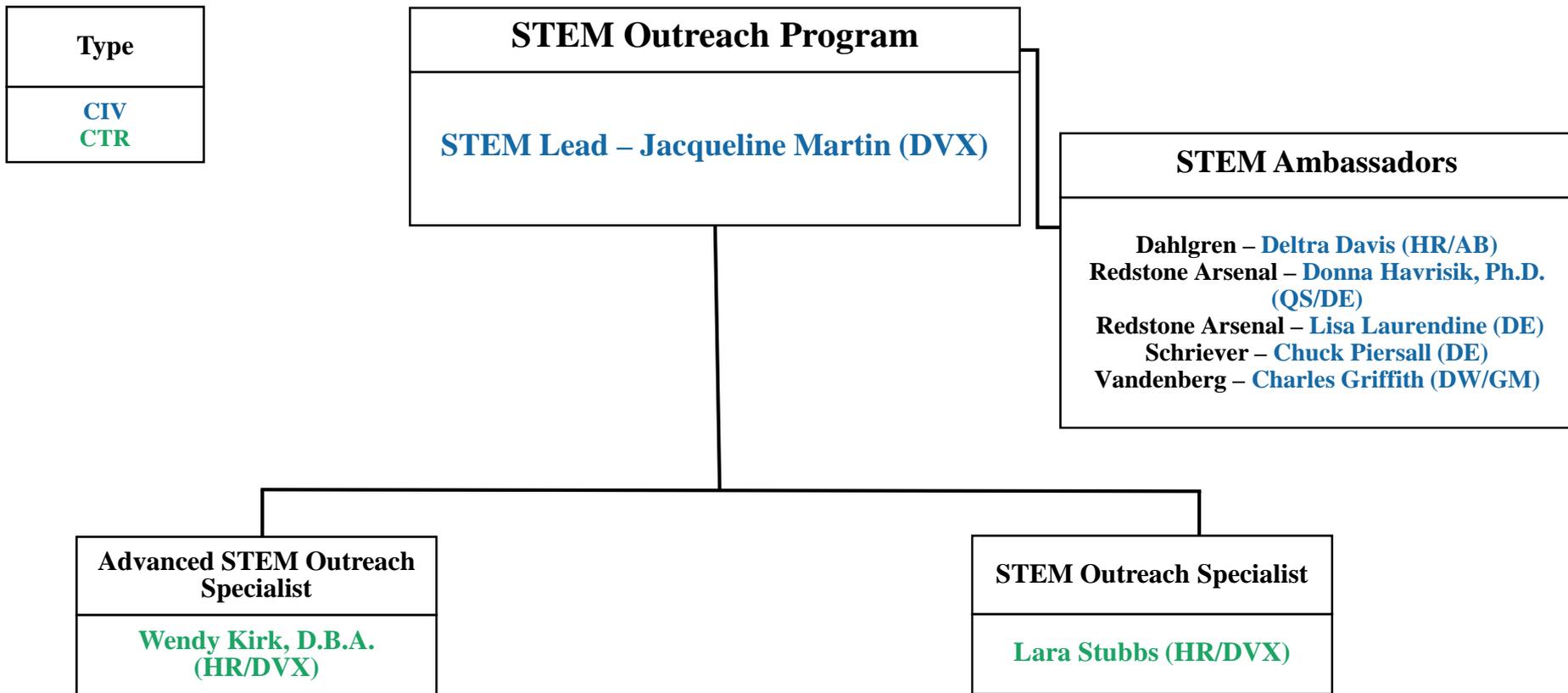
- Located at the Von Braun Complex, Redstone Arsenal, AL
- Staffed with full time personnel serving MDA workforce
- Charged with implementing programs that fill gaps based on future national defense
- Focuses on 3 target groups:
 - K-12
 - College
 - Educators
- Goal is to prepare next generation of scientists and engineering professionals



**Von Braun Complex
Redstone Arsenal, AL**



STEM Outreach Program



Approved for Public Release
21-MDA-10707 (23 Feb 21)



STEM Ambassadors

STEM Ambassadors

- Role given to distinguished, experienced STEM professionals to assist in regional speaking engagements and other STEM volunteer activities
- Utilized to increase the bandwidth of STEM support across the Agency
- Serve as regional representative for MDA locations (listed below)

Location	Number
Redstone Arsenal	1-4
Fort Belvoir (HQ)	1
Dahlgren	1
Schriever AFB	1
Kirtland AFB	TBD
Vandenberg AFB	1
Fort Greely	TBD

Approved for Public Release
21-MDA-10707 (23 Feb 21)



STEM Targets

STEM Focus Groups:

- **Per DoD STEM mission, the Agency addresses 3 targets**
 - **K-12**
 - **College**
 - **Educators**
- **MDA's preferred target group is 3rd and 4th graders**
- **MDA's collective concentration of outreach activities is K - 12**
- **To best serve the interests of this audience, content is tailored to the Agency STEM Contract and collegiate-based STEM initiatives**

Approved for Public Release
21-MDA-10707 (23 Feb 21)



IGNITE Contract

Inspiring Generations with New Ideas to Transform Education (IGNITE): K-12 STEM Education

Three Initiatives:



**EXploring Collaborations that Inspire Transformation in Education
(EXCITE)**

- Teams of high school students compete in a semester-long conceptual MDA surrogate engineering design
- Focus is on CubeSat manufacturing



**Realizing Alternatives and Multiple Pathways by Unlocking your Potential
(RAMP UP)**

- Project to engage/train teachers with STEM-ed workshops at schools across the nation
- Target is underrepresented populations



**Data Evaluation from Testing via an Educational Challenge with Teachers
and Students (DETECTS)**

- Teams of high school students compete in a year-long competition to program a low-cost computer
- Features Raspberry Pi programming

Approved for Public Release
21-MDA-10707 (23 Feb 21)



Hacking 4 Defense

The “Hacking” Concept:

- Collegiate classroom experience sponsored by the DoD’s National Security Innovation Network
- Students gain hands-on practical work experience solving real-world problems from government DoD agencies
- Taught at over 37 universities across the nation
- “Win-Win Collaboration” in preparing the next-generation workforce



Connecting the Classroom to Real-World Problems

Approved for Public Release
21-MDA-10707 (23 Feb 21)



Military Academy Internship (MAI)

Military Academy Internship:

MDA partners with the services in offering STEM-based Military Academy Internships

- Incorporated by MDA since the inaugural year of 2016
- Extended to US Navy, US Air Force, and West Point
- Internships comprise real-world STEM projects, training, senior-level office calls, and out briefs reflecting the MDA Enterprise
- 4-week duration for summer of 2021 (virtual)
- 100% funded by STEM Office



Approved for Public Release
21-MDA-10707 (23 Feb 21)



FY20 STEM Program Highlights

Summary:

MDA STEM implemented signature programs that fill STEM education gaps based on national defense needs. It supported STEM events designed to inspire, cultivate, and enhance STEM engagement throughout the community. **MDA STEM impacted over 20,000 K-12 students, college students, and educators and helped prepare the next generation of STEM professionals for careers within MDA.**

- MDA STEM recruited volunteers across the agency to perform as judges in the 36 STEM competitions, allowing them to serve over **10,300 students across the nation**
- MDA provided volunteers, presentations, and activities at special events across the country, impacting over **10,400 participants**
- As the DoD Site/District and MDA Coordinator for DoD FIRST Robotics Grants, MDA STEM coordinated the endowment of **18 DoD FIRST grants and 9 MDA mentors**
- Conducted the **1st virtual STEM camp** ever piloted in the history of MDA, providing continuous STEM engagement despite the pandemic
- Successfully **acquired the IGNITE contract** bringing forth STEM education teacher professional development and student problem based learning experiments (PBLEs) to underrepresented entities

Approved for Public Release
21-MDA-10707 (23 Feb 21)



Contact MDA STEM

MDA Public Web Site:

<https://www.mda.mil/about/about.html>

MDA STEM Public Web Site:

<https://www.mda.mil/about/STEMoutreach.html>

MDA STEM Activities:

<https://www.mda.mil/about/STEMactivities.html>

Email:

STEM@mda.mil



Approved for Public Release
21-MDA-10707 (23 Feb 21)