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# MRM-KE: A Lethal Solution

Eric Volkmann  
Alliant Techsystems (ATK)  
4700 Nathan Lane  
Plymouth, MN 55442  
763-744-5110  
Eric.Volkmann@atk.com

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# Acknowledgements



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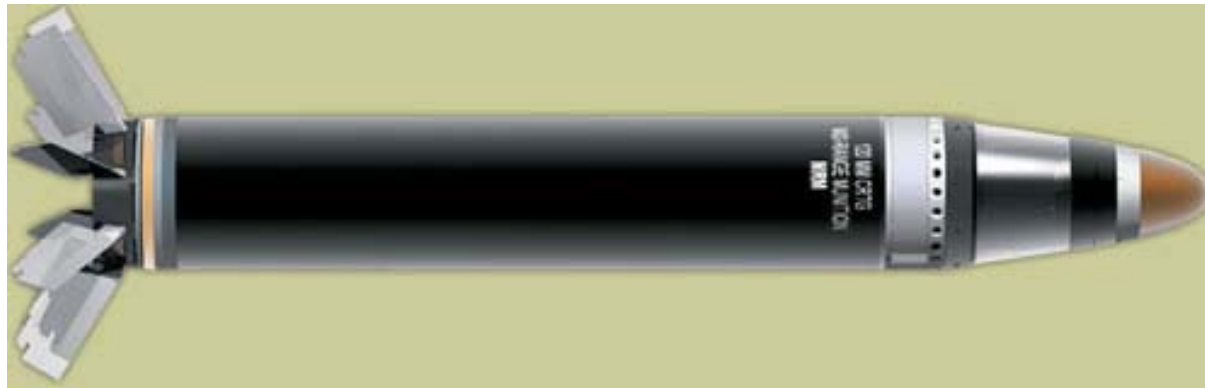
- **PM-MAS, Picatinny NJ**
- **ARDEC, Picatinny NJ**
- **Army Research Laboratory, Aberdeen MD**
- **Alan Gauzens – ATK TERM-KE/MRM Program Manager**
- **Barry Lindblom – ATK TERM-KE/MRM Technical Lead**
- **Many other contributors to this program's success....**

# What is MRM-KE?



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- **Mid-Range Munition-Kinetic Energy (MRM-KE)**
- **Next generation Beyond Line Of Sight (BLOS) tank ammunition**
  - **Fire-and-forget from 120mm smooth bore cannon**
  - **2 to 12 km Range**
- **Under development via ARDECs MAAST ATO**
- **MRM Program Transitions to SDD in GFY 08**



# Platforms and Targets



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## Potential Platform



M1A2 Abrams

## Primary Target



## Planned MRM Platform



FCS Mounted Combat System Concept

## Secondary Targets

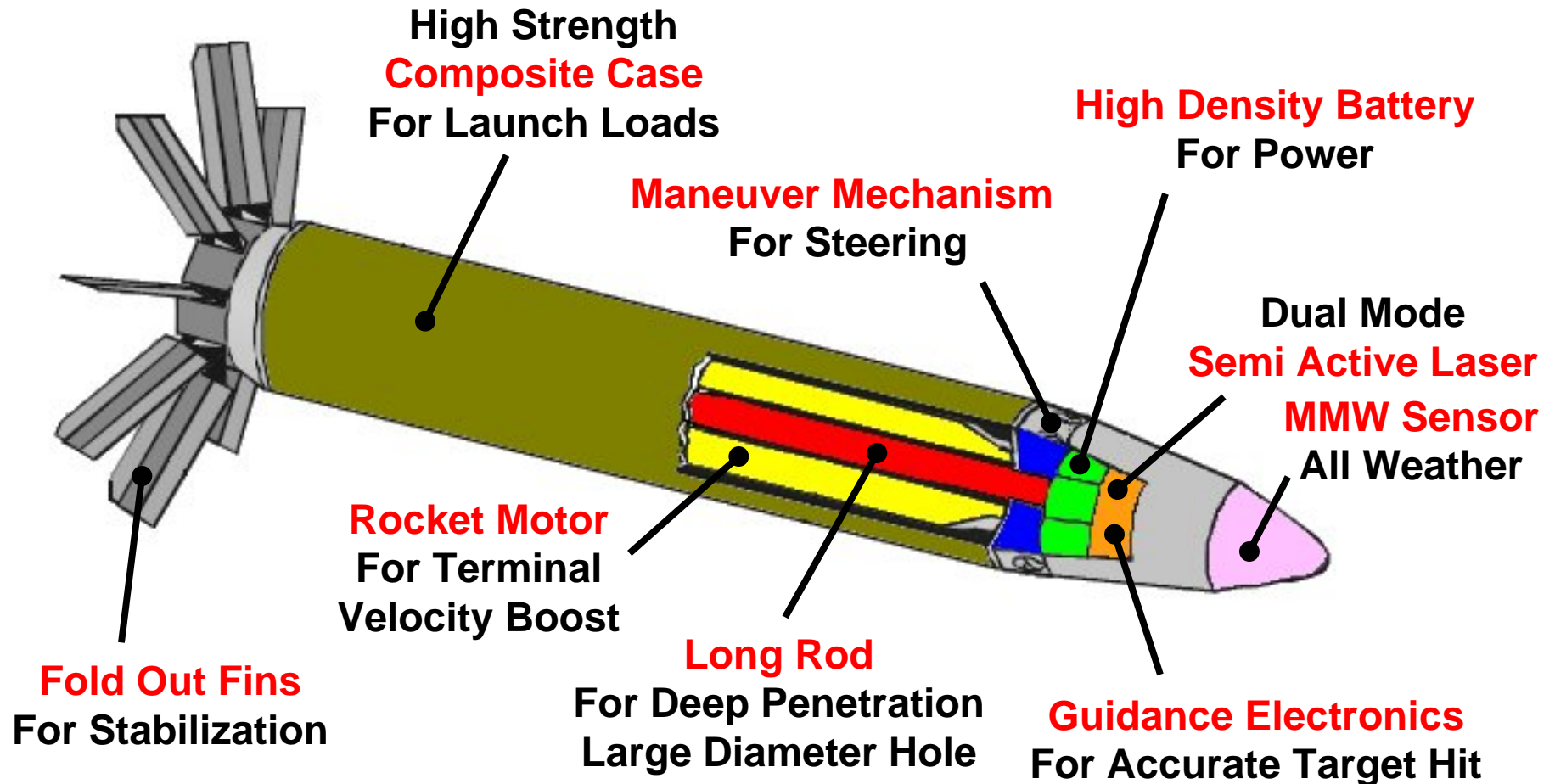


# Basic Design



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- Evolution of XM1007 Tank Extended Range Munition (TERM-KE) into MRM-KE



***Total Projectile used in Target Defeat***

**VIDEO** 



# Speed Kills – MRM-KE Advantage



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- Accuracy from Dual Mode all-weather Millimeter Wave and Semi Active Laser sensors with maneuver mechanism
- Hard Target Lethality from terminal velocity boost & large diameter penetration hole

**Autonomous un-aided BLOS Target Hit in 2004!**

**VIDEO**



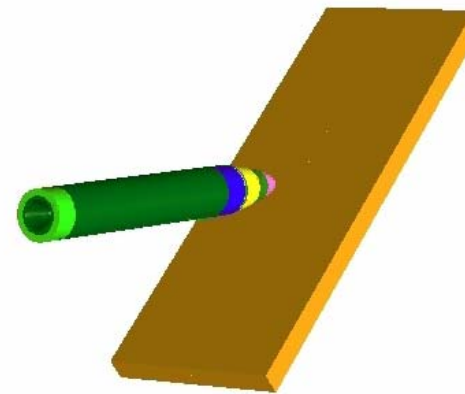
# Terminal Ballistics Modeling and Test



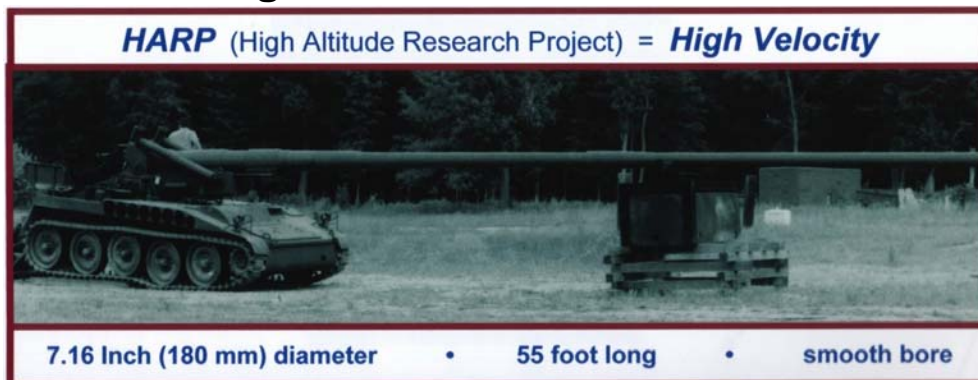
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- Terminal ballistics modeled using 3D EPIC Lagrangian computer code
  - 3D, multi-processor simulations
  - Complex target interaction
- Testing at Army Research Lab, Aberdeen MD
  - 7” diameter, experimental HARP gun tube

VIDEO



Simulation Example



Experimental Gun



Test Round in Sabot



- Testing has shown MRM-KE effective against modern tanks protected by explosive reactive armor
- MRM-KE Impacts with > 2.5x the energy of 120mm KE bullet
- MRM-KE also effective against secondary targets

**VIDEO**



**MRM-KE delivers bunker buster/soft target defeat**

- **ATK's MRM-KE is Beyond Line Of Sight, Fire-And-Forget 120mm "tank" ammunition round**
- **MRM-KE is Lethal against main battle tanks and softer, secondary targets**
  - **Dual-mode, all weather Millimeter Wave and SAL sensors with accurate guidance system**
  - **Terminal rocket motor velocity boost → **Speed Kills****
- **Currently in ARDECs MAAST ATO S & T Phase**
  - **MRM SDD award planned for Summer/Fall 2007**