ARL provides underpinning Science, Technology, and Analysis to the Army
ARO is ARL’s Principal Conduit to Engage the University Research Community
"We will need new technology over the next 10 years to make a leaner and more capable Army."

GEN Raymond T. Odierno
38th Chief of Staff, Army
ARO Organization

Director

- Chief Scientist
- Military Deputy
- Special Assistant
- Legal Counsel

Physical Sciences Directorate
- Chemical Sciences Division
- Life Sciences Division
- Physics Division

Engineering Sciences Directorate
- Electronics Division
- Materials Sciences Division
- Mechanical Sciences Division
- Earth Sciences Division

Information Sciences Directorate
- Computing Sciences Division
- Network Sciences Division
- Mathematical Sciences Division
- Outreach Division

Operations Directorate
- Support Management
- Information Management Division
- Acquisition Center

~100 employees at RTP, NC
37 PhD Program Managers
Army Research Office Goals

Utilize the vast intellectual capital of our nation’s universities to:

- **Create and Exploit Scientific Opportunities for Revolutionary New Army Capabilities**
- **Drive Science to Develop Solutions to Existing Army Technology Needs**
- **Accelerate Transition of Basic Research**
- **Leverage S&T From Outside Sources**
- **Create and Strengthen University, Industry, Government Partnerships**
- **Unbiased expert assessments for HQs**
- **Educate and Train the Future S&E Workforce for the Army**
- **Prevent Technological Surprises**

Research Domains

- Chemistry
- Computing & Info Science
- Electronics
- Environmental Life Sciences
- Materials
- Mathematics
- Mechanics
- Network Science
- Nanoscience
- Physics

Research ranges from atom optics for underground bunker/tunnel detection to nano-energetics for more powerful and insensitive munitions and propellants
Mission
Provide innovative science, technology, and analyses to enable full spectrum operations.

Vision
America’s Laboratory for the Army: Many Minds, Many Capabilities, Single Focus on the Soldier

ARL Extramural and In-House tightly integrated and collaborative through numerous mechanisms

ARO an Integral part of ARL

Acknowledged Scientific, Technical and Analytical Excellence

Recognized bridge between the Nation’s Scientific and Technical Communities and the Army

Leader in providing innovative solutions for the current and future Army

ARL S&T Campaigns
- Assessment/Analysis
- Materials Research
- Computational Sciences
- Human Sciences
- Information Sciences
- Sciences for Maneuver
- Sciences for Lethality & Protection

ARO Basic Research Thrusts
- Chemistry
- Computing Sciences
- Electronics
- Life Sciences
- Materials
- Mathematics
- Mechanics
- Physics
- Network Sciences

TRADOC/ARCIC S&T Lines of Effort
- Human Performance Optimization
- Information to Decision
- Robotics
- Mobile Protected Platforms
- Aviation
- Improved Lethality & Effects
- Logistics Optimization
**Business Model**

**Exploit a Unique Understanding of Both the Warfighter and Basic Research**
- Know what the warfighter needs now
- Determine what the warfighter needs in the future
- Understand the current cutting-edge of science and engineering
- Drive the cutting-edge in new directions to create new solutions for the warfighter

**Utilize a Coordinated and Cohesive Set of Mechanisms**

**Utilize and Help Create Strategic Guidance**

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<th><strong>ASD(R&amp;E) S&amp;T Priorities for FY13-17</strong></th>
<th><strong>OSD High Interest Basic Science Research Areas</strong></th>
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ARL Basic Research Portfolio
From Ideas to Technology

- Single Investigator Program: $78M
- University Research Initiative: $73M
- University Affiliated Research Centers (UARCs): $30M
- University Centers of Excellence: $17M
- Collaborative Technology Alliances: $48M
- ARL In-house Lab Research: $69M
- Complementary programs cohesively managed

FY2014 Data
**Objective of Each Approach**

* University Single Investigators
  - Utilize world-class academic expertise world-wide
  - Rapid, agile exploitation of novel scientific opportunities
  - Very Cost Effective
  - 3yr grants, ~$120K.yr, No Automatic Renewal

* Multidisciplinary University Research Initiatives
  - University-led, multidisciplinary initiatives
  - 3-5 year duration, $1.25 M/year efforts

* University Affiliated Research Centers
  - University-led consortium
  - High intensity centers for emerging opportunities
  - 5-8 year duration, $5-10M/year efforts

* University Centers
  - University-led, focused initiatives
  - 5 year duration plus options;
  - $1-10M/year efforts

* In-house Research
  - Maintain Army “smart-buyer” capability
  - Army-unique facilities
  - Provide world-class researchers in Army critical areas

* Collaborative Technology Alliances (CTAs)
  - Partnership with in-house labs, academia, and industry
  - Focused technology initiatives and rapid transition
  - (staff rotation) 5-8 year duration;
  - 20-30 man-year, $5-8M/year efforts

**Goal of Research Approach**

- Exploit Scientific Opportunities
- Overcome Technical Barriers
- Both