

# MATERIALS AND EQUIPMENT TECHNICAL ADVISORY COMMITTEE (METAC)

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**November 17, 2022**

**\*\* OPEN SESSION \*\***

**Presentation “Current and Emerging Neurotechnology’s; Implications for the Global Bioeconomy” – Dr. James Giordano, Georgetown University**

**James Giordano, PhD, MPhil**

James Giordano, PhD, MPhil, is Chief of the Neuroethics Studies Program, Scholar-in-Residence, leads the Sub-Program in Military Medical Ethics, and Co-director of the O’Neill-Pellegrino Program in Brain Science and Global Health Law and Policy in the Pellegrino Center for Clinical Bioethics; and is Professor in the Departments of Neurology and Biochemistry at Georgetown University Medical Center, Washington, DC, USA. He is also Distinguished Visiting Professor of Brain Science, Health Promotions and Ethics at the Coburg University of Applied Sciences, Coburg, Germany, and was formerly 2011-2012 JW Fulbright Foundation Visiting Professor of Neurosciences and Neuroethics at the Ludwig-Maximilians University, Munich, Germany.

Prof. Giordano currently serves as Chair of the Neuroethics Program of the IEEE Brain Project, and an appointed member of the Neuroethics, Legal and Social Issues (NELSI) Advisory Panel of the Defense Advanced Research Projects’ Agency (DARPA). He has previously served as Research Fellow and Task Leader of the EU Human Brain Project Sub-Project on Dual-Use Brain Science; an appointed member of United States Department of Health and Human Services Secretary’s Advisory Council on Human Research Protections (SACHRP); and as Senior Science Advisory Fellow of the Strategic Multilayer Assessment Branch of the Joint Staff of the Pentagon.

Dr. Giordano’s presentation was very dynamic and entertaining. Please see the following highlights.

- Current NeuroS/T
  - Assessment
  - Intervention
  - Force Multiplying
- NeuroS/T on the 21<sup>st</sup> Century Global Stage
  - Increasingly Multi-national
  - Increasing Asian Effort(s)
  - Advancing Developed Nations
  - Capabilizing Developing Nations
  - Establishing Bio-psychosocio-economic
    - Leveraging
    - Hegemonies
  - Creating Contingencies in Non-Developed Nations
- NeuroS/T Markets
  - \$175+ billion annual market

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- Predicted 60-68% increase in Asian RDTE by 2020-2025
- Diverse domains of utility/effect/influence
  - Healthcare
  - Public life
  - Global relations – including NSID
- Neurobioeconomy
  - The Big Cs
    - Convergence
    - Collaboration(s)
    - Cooperation(s)
    - Competition(s)
    - Conflict(s)
      - and their contingencies
- Culture
  - Both a Medium and Forum
    - History
    - Needs
    - Values
    - Philosophies
      - Anthropologic Factors
      - Ecological/Economic Factors
      - Ethics
- Emerging and Exigent Trends
  - Research Tourism
  - Medical Tourism
- Biomedical Safety Issues
- Preparedness
- Neuroethics on World Stage
- Beyond STEM...Keeping in STEP
  - Integrative Science Technology Ethics and Policy
- ON-RAMP
  - Operational Neuroethical Risk Assessment and Mitigation Paradigm
- Particularity of “Collective Efforts:
  - Requires defining context(s), Setting Ethical Goal(s)/Ideal(s), Habermas’ Discursive Approach and Possible Method(s)
- Mechanisms for Change
  - Persons=Participants
  - Participating purpose
  - Process of decision and direction for changes
  - Development of policy
    - Enables and sustains change – effect(s)
    - Provides administrative basis for affect and sustainability
- Policy Should Facilitate
  - Research and access to knowledge

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- Translational schemes and settings
- Guidance and governance of dual use
- Awareness of limits
- Provisions of good(s)
- Mitigation of burdens, risks and harms
- Begs the Question(s)...
  - If S/T and health promotions are to be “global”
    - What ethics?
    - What culture(s)
    - Are current ethical systems/approaches adequate and/or sufficient?
  - Do we need a “new ethics” for the “New Global Shift”?

## **Presentation “ATI Alloy Materials, and Export Issues” – Robert Toth, ATI Inc.**

**Robert Toth** is Director & Senior Counsel – Intellectual Property and Export Compliance at ATI Inc. He is also a METAC member.

ATI Inc. is a global manufacturer of specialty materials and components, serving customers in Aerospace, Defense and with critical applications in key markets.

Bob’s presentation was very concise and interesting. Please see the following highlights.

- ATI: A Whole Greater Than the Sum of Its Parts
  - ATI Specialty Alloys & Components
    - Born 1956 as Wah Chang Albany Corp.
  - ATI Specialty Rolled Products
    - Born 1902 as Allegheny Steel & Iron
  - ATI Specialty Materials
    - Born 1957 as Allvac Metals Company
  - ATI Forged Products
    - Born 1905 as Ladish Drop Forge Co.
- ATI Product and Manufacturing Portfolio
  - From Special Materials through Advanced Value-Add Manufacturing Technologies
- ATI Specialty Alloys & Components: Innovator in reactive and refractory metals
  - Six decades of specialty alloy innovation makes SA&C the world leader in materials enabling nuclear propulsion and nuclear energy, magnetic resonance superconductivity, thrust in space exploration and the purest materials to enable the most advanced electronics.
- ATI Specialty Alloys & Components
  - Zirconium
  - Hafnium
  - Niobium
- ATI Specialty Rolled Products: World-class specialty materials rolling and finishing
  - Sophisticated alloys including high-strength titanium, corrosion-resistant nickel, and specialty stainless steel, worked into coil, strip, foil and plate for efficient manufacturing.

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- ATI Specialty Rolled Products
  - Specialty steel, nickel, cobalt, and titanium flat products
  - 1C999.b
  - 2B999.n
- ATI Specialty Materials: High-performance alloys without compromise
  - Industry-leading in production of nickel and cobalt-based superalloys, titanium alloys and specialty steels for customers in aerospace, defense, energy and medical industries.
- ATI Specialty Materials
  - Titanium aluminides – 1C002.a.2
  - Certain fatigue-resistant nickel powder alloys – 1C002.b.1
  - High-strength titanium alloy round product – 1C202.b
  - Maraging steels – 1C116 and 1C216
- ATI Forged Products: World-class thermomechanical processing and manufacturing
  - World’s best isothermal forging and super-hot die heating technology, supported by modeling, non-destructive and destructive testing, machining, and finishing services with the certified quality to meet demanding requirements.
- ATI Forged Products
  - Export classifications driven by customer design and application
    - Aerospace business largely drives export compliance issues
      - Complex airframe and aeroengine OEM supply chains
        - 9A991.c
        - 9A991.d
      - Space launch and defense aircraft
        - 9A515
        - 9A610
        - 9A619
- Controlled Equipment
  - Alloy melting, casting, and atomization
    - 1B002, 2B226, 2B227.a, 2B227b
  - Powder metallurgy equipment
    - 2B004, 2B104, 2B204
  - Post-processing
    - 2B001, 2B006, 2B206
- Export Issues of Concern
  - What’s next for metal and alloy material controls?
  - What’s next for metal additive manufacturing?
- Our values guide how we succeed
  - Integrity
  - Accountability
  - Innovation
  - Teamwork & Respect
  - Safety & Sustainability

**Presentation “Danaher Overview” – Galina Free, Danaher Corp.**

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**Galina Free** is Director Global Trade Compliance at Danaher Corp. She is also a METAC member.

Danaher is a \$30B company headquartered in Washington DC. Through its subsidiaries, they employ over 80,000 employees. Their industries include life sciences, diagnostics, and environmental and applied solutions.

Galina's presentation was very detailed and informative. Please see the following highlights.

- Life Sciences Business
  - Instruments and consumables to study genes, proteins, metabolites, and cells, to understand the causes of disease, identify new therapies, and test and manufacture new drugs and vaccines.
- Bioprocessing workflow
  - Discovery, development, and manufacturing of vaccines, diagnostics, and treatments.
- Trade Challenges
  - Military End User Rule application to medical facilities and labs
  - Supplement No. 3 to Part 774 – Statement of Understanding medical equipment. Commodities that are *“specially designed” for medical end-use “that incorporate” commodities or software on the CCL (Supplement No. 1 to part 774 of the EAR) that do not have a reason for control of Nuclear Non-proliferation (NP), Missile Technology (MT), or Chemical & Biological Weapons (CB), are designated by the number EAR99 (i.e., are not elsewhere specified on the CCL).*
    - *“Specially designed for medical end-use”* means designed for medical treatment or the practice of medicine (**does not include medical research**).
    - Could cover vaccines, therapeutics, related diagnostics and their equipment, raw material, and consumables.
  - 3A999b Mass spectrometers n.e.s. – does it include medical and research items?
  - Australia group countries' Vaccine Note:
    - Vaccine which contains only a genetic element of a listed virus is export controlled, but a vaccine which contains a complete, listed pathogen is decontrolled under the Vaccine Note.
    - The *Australia Group Common Control List, List of Human and Animal Pathogens and Toxins for Export Control* (28 February 2020), provides that the Vaccine Note (at footnote1) applies to any controlled virus.
  - Export to Russia:
    - License decision inconsistencies between the EU and US:
      - Spares, HS Code 84849000, to support EAR99 or non-dual-use medical or drug research instruments: US – approved, EU – denied.
      - Export delays or holds in the UK and EU of non-controlled non-restricted instruments at hospitals.
    - Export Classifications decision inconsistencies between the US and EU:
      - Empty filtration cassette holder U.S. “2B352”, Sweden “NOCLASS”-**End of Document-**