SCIENCE AND TECHNOLOGY ORGANIZATION

COLLABORATION SUPPORT OFFICE

HUMAN FACTORS AND MEDICINE (HFM) PANEL

CALL FOR PAPERS

HFM-231 SYMPOSIUM on

"BEYOND TIME AND SPACE"

This Symposium is OPEN to Partnership for Peace (PfP),

Mediterranean Dialogue (MD) and Selected Contact Nations

To be held in

Orlando, United States

14-16 October 2013

DEADLINE FOR RECEIPT OF ABSTRACTS:

6 March 2013

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Science and Technology Organization in NATO

In NATO, Science & Technology (S&T) is defined as the selective and rigorous generation and application of state-of-the-art, validated knowledge for defence and security purposes. S&T activities embrace scientific research, technology development, transition, application and field-testing, experimentation and a range of related scientific activities that include systems engineering, operational research and analysis, synthesis, integration and validation of knowledge derived through the scientific method.
In NATO, S&T is addressed using different business models:

- The Collaborative business model where NATO provides a forum where NATO Nations and partner Nations elect to use their national resources to define, conduct and promote cooperative research and information exchange.
- The In-House delivery business model where S&T activities are conducted in a NATO dedicated executive body, having its own personnel, capabilities and infrastructure.

The Science and Technology Organization - STO

The mission of the NATO STO is to help position the Nations' and NATO's S&T investments as a strategic enabler of the knowledge and technology advantage for the defence and security posture of NATO Nations and partner Nations, by:

- Conducting and promoting S&T activities that augment and leverage the capabilities and programmes of the Alliance, of the NATO Nations and the partner Nations, in support of NATO's objectives;
- Contributing to NATO's ability to enable and influence security- and defence-related capability development and threat mitigation in NATO Nations and partner Nations, in accordance with NATO policies;
- Supporting decision-making in the NATO Nations and NATO

The Human Factors and Medicine Panel (HFM) covers the fields of three domains which are complementary and represent the three 'Area' Committees of the HFM Panel:

A) The **Health, Medicine and Protection Area (HMP)** provides the scientific basis for establishing an operationally fit and healthy force, restoring health, minimizing disease and injury, optimizing human protection, sustainability and survivability. This encompasses research in the field of military medicine, physiology, psychology and human protection technology. Areas of interest include, among others, medical diagnosis, prevention, treatment and evacuation. HMP also focuses on enhancing human protection research on physiological and physical influences, e.g. of cold, heat, air pressure, noise, vibration, ionizing and non-ionizing radiation, acceleration, motion, biological and chemical effects on the human body, and developing appropriate countermeasures.

B) The **Human Effectiveness Area (HE)** optimizes individual readiness and organizational effectiveness by addressing psycho-social, organizational, cultural and cognitive aspects in military action. Contributions on individual readiness cover values and ethics, leadership, multi-national operations and coping with new demands on the individual. Contributions on organizational effectiveness encompass human resource management, training, interoperability, shared decision-making, synchronized situational awareness, understanding terrorism, psychological operations and coping with new demands on military organizations.

C) The **Human System Integration Area (HSI)** optimizes the performance of human-operated technical systems by addressing the human-machine interactions, processes, tools and measures of effectiveness. Specific contributions cover complexity, total life-cycle affordability, human error and fatigue management, intelligent agent, human-system communication, human cognitive and physical resources management, anthropometry, interface, design of information displays and controls, human-human communications and teamwork, performance enhancement and aiding, training and function allocation in automated systems.

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BEYOND TIME AND SPACE

THEME

1. INTRODUCTION

The expression "Beyond Time and Space" has been used in many situations, from a popular computer game, to a series of science fiction stories, to an exploration of the human existence. Going beyond time and space constraints has been a crucial motivation ever since humans tried to improve their lives with inventions beyond natural evolution. Examples are the first hunting spears, 270.000 years ago, that allowed humans to have an impact far beyond the reach of their own limbs, the wheel just 6000 years ago that allowed us to move over Earth's two-dimensional surface faster and further, writing around 5000 years ago, which allowed us to store and restore human thoughts even when the original thinker was long gone. All of these cultural and technological inventions have brought a higher standard of living to many parts of the planet, while many challenges still remain to be solved

While the 20th century brought huge breakthroughs in physical mobility like cars, trains, planes and space flight, the last decades have brought significant breakthroughs in the mobility of information, making information available anytime, anywhere. Military and commercial operations now take place globally and in many time zones., Human knowledge and intelligence is now being systematically transferred to computers, allowing them (e.g. in the form of robots or automated vehicles) to operate autonomously even far away from the original time or space of its human originators. Moreover, that notation of space has expanded: new spaces have opened up like the cyber space of Internet.

Given the speed of communications and the instantaneous globalization of the transfer of information, knowledge and perception the constraints of time and space appear to be breaking down. Imagine a future when physical location and interaction in real time are no longer barriers to planning, working, commanding, learning and social interaction. Certainly technological advancements over recent years have made great strides and have shown that such a future is feasible. But is this a brave new world that will bring enormous benefits to our lives or yet another technological promise that falls short of initial expectations? What will be needed of the technology to fulfill our hopes? How will this change the way we interact, collaborate, coordinate and work together? Is face to face communication the best we can do or can we do better? If we can rapidly deliver and access information anytime, anywhere , does this also bring additional burdens and risks to humans? How do we balance risks and chances of this development? What new methods of Human Factors, Human Effectiveness, Medicine and Human-Systems Integration do we need to keep this development efficient, safe and enjoyable?

2. OBJECTIVES

This Research Symposium is designed to evaluate new and emerging technologies, working environments and methods that could break down the tyranny of time and space. The specific goal of this activity is to facilitate a broader understanding of the promise and pitfalls of these technologies and working environments in NATO military settings, with special regard to the human in the system and to the integration of humans and technical subsystems. While research on existing systems and new human-machine systems which could be operational 5 years down the road is welcomed, we especially encourage groundbreaking, discovery oriented research, invention and innovation. Over the horizon scanning and transversal ideas that have a 10 or 20 years horizon are being solicited.

The symposium should lead to identification of areas in which coordinated research efforts are required to expand an understanding of these technologies, their effectiveness, the potential risks, and the potential benefits of new ways to work and collaborate. It should also inform the NATO Military Committee, its COMEDS and the CNAD about current options for NATO operations.

3. TOPICS TO BE COVERED

The contributions for the symposium could address the following topics:

Telemedicine. The ability to use advanced information and medical technologies to deliver preventive and operational medical care worldwide is still in its infancy. Information technology in the commercial sector is leaping ahead of military medical concepts of operations. The questions are how we will use these systems in the future. Topics in this area include: (1) Distance learning to support both clinical training, just in time training in the field, and novel techniques for training; (2) Patient tracking to support the continuity of care from the battlefield to the top civilian hospitals and veterans care facilities; (3) Remote treatment of patients to include self-care, combat medic, field surgical teams, and robotics.

Remote Cooperation and Warfare. The effectiveness of being able to cooperate even over distances and strike our enemies to protect our interests in denied areas has been demonstrated repeatedly over the last few decades. This capability has both benefits and costs. Some of the benefits include a decreased risk to our military personnel and a decreased decision to target timeframe. The costs include financial costs for new systems and capabilities, the psychological costs of dissociating warfighters from the battlefield, and unintended collateral damage. Topics in this area include: (1) Autonomy and Autonomous Systems: (2) Unmanned Systems: (3) Robotics for both military and medical operations; (4) Cooperative Automation (5) Decision making in real time (i.e., knowledge extraction, naturalistic interfaces, etc.); (6) Novel training systems and methods, and; (7) Implications for work-rest life balance.

From Data to Meaning in Large Data Spaces. The ability to collect, analyse, organize and then extract meaning from large amounts of data is a challenge for the military as well as the private and commercial sector. The amount of data available to the individual today is remarkable. How do we harness this information and make it actionable and relevant for the warfighter? Topics in this area include: (1) Methods and techniques for capturing and storing data; (2) Extracting data to support human performance and medical advances; (3) Application of Systems Biological approaches to medicine, human performance and systems design; (4) Identification and application of networks (social, technical, political, etc..) in a military construct; (5) Naturalistic Interfaces and macroscopes to large data spaces.

Virtual Life. We all are living today in both the real and virtual worlds. We are all immersed in cyberspace through the use of social media, internet search engines, training simulators, online courses, or immersive new worlds like Real Life. This co-mingling of the real and virtual worlds has appeared in the last decade. How will the rapid advances in these technologies shape our world 10 years from now? Topics in this area include: (1) Cyber networks and their role in warfare, social engineering, and geo political events (i.e., disaster relief, revolution and protests, etc.); (2) Telework and its influence on social systems, productivity, infrastructure, and policy; (3) Cultural Impacts of technology both inside the military and around the world; (4) Vulnerabilities related to the use and misuse of information technology, and: (5) Use of virtual worlds for simulation, mission rehearsal, and live virtual constructive (LVC) training and supporting technologies (i.e. intelligent tutors, automated performance assessment, etc.).

Planning and Forecasting for future times and spaces. Our ability to plan and forecast events at the micro and macro level are improving through the advancement of science, lessons learned, and technological improvements. In the future our ability to predict both military as well as humanitarian events across the globe will be essential to the security of our nations. Topics in this area include: (1) Modelling and simulation in support of planning and forecasting events; (2) Medical planning and forecasting for humanitarian and military operations that considers both NATO and non-NATO assets and personnel; (3) Logistical planning on the micro and macro level; and (4) Human Systems Integration related challenges, methods and techniques in this area.

INSTRUCTIONS FOR ALL AUTHORS

1. Introduction.

The three-day Symposium will be held in Orlando, United States, from 14-16 October 2013. It is supported by the Human Factors and Medicine Panel (HFM) of the Science & Technology Organization, Collaboration and Support Office (STO-CSO). All sessions of the HFM Symposium will be Unlimited and Unclassified. Attendance at the HFM Symposium is by enrolment only. The Symposium audience will include experts from NATO, PfP and MD countries, as well as selected Contact Nations.

Authors are invited to submit papers for this Symposium. Papers and presentations **will be delivered in English**. The Programme Committee will select papers, based on submitted abstracts that are considered suitable for presentation at the Symposium. It is expected that about 30 papers will be selected for oral presentations at the Symposium. **Proposed abstracts are due at the STO-CSO by 6 March 2013**. The selection of papers will be completed mid April 2013 during the HFM Spring Symposium week in Milan, Italy, and all authors will be notified shortly thereafter by the Programme Committee Chairpersons whether or not their papers are selected.

The time allowed for each speaker is normally 20 minutes, plus 5 minutes for discussion. Equipment will be available for Power Point presentations. Details of the timing will be given in the Programme Announcement, which will be distributed to the NATO, Partners for Peace (PfP) and Mediterranean Dialogue (MD) countries by the CSO Office, STO National Coordinators, HFM Panel members, etc..

In **MAY 2013**, the Programme Announcement as displayed at the CSO web site (www.cso.nato.int) will contain enrolment details. By that time, authors of selected papers will also receive Instructions for Authors, which will provide detailed instructions for the presentation, transmission of short biographies, manuscripts and clearances.

IMPORTANT NOTE:

All presented papers will be published in an **official STO publication as Meeting Proceedings**. Also note that the written papers will be evaluated for their use by the Technical Evaluator, preceding the symposium and for that reason, must be delivered in time. This action is an important part of the Symposium activities as all manuscripts will be made available at the CSO web site for all symposium attendees two weeks prior to the event (password protected).

Authors not submitting a full scientific paper (minimum 5 to 25 pages) will not be allowed to present at the meeting site. Therefore, authors of selected papers **MUST** provide a complete manuscript for publication.

Further details on the manuscripts will be given in the **Instructions for Authors** which will provide detailed instructions for the presentation, transmission of short biographies, manuscripts and Clearance.

Instructions will be **sent in MAY 2013** with the Programme Announcement by the HFM Panel Office **c/o Ms. Danielle PELAT:** danielle.pelat@cso.nato.int.

Authors of papers selected for presentation at NATO/STO/CSO Symposia are not financially supported by this organization. Therefore, before sending your abstract, you must ensure that you will be financially supported by your Organization/Nation for your travel to the meeting site.

2. Abstracts.

All unclassified abstracts of papers offered for the Symposium should contain the following information:

HFM-231 SYMPOSIUM On

BEYOND TIME AND SPACE

TITLE OF ABSTRACT/PAPER
Title/Rank, Full Name of Author/Co-Author(s)
Company/Affiliation
Complete mailing address
Telephone, Fax, E-mail

A.LENGTH	-	200 to 500 words
B.CONTENT	-	State for which scenario/ level your paper is intended
	-	Introduction/relevance to the Symposium
	-	Rationale
	-	Description of methods employed (when needed) and results or observations obtained
	-	Conclusions
C.IDENTIFICATION	-	Information on Attachment 1 must be provided with all abstracts
D. SUBMITTAL	-	By all authors
E.CLASSIFICATION	-	**Abstracts must be unclassified**

2.1 For US Authors and Non US Citizens Affiliated with US Organizations:

Abstracts and the **Attachments 1 & 2** should be submitted via e-mail well before the deadline to the **U.S. P.O.C.** ***ONLY, to obtain the National US approval.***

2.2 For Non US Authors (All other countries)**:**

Abstracts and Attachment 2 (Details of Authors Form) should be e-mailed in time to reach the Technical Programme Co-Chairs and Committee Members listed on page 3, as well as to the HFM Panel Office (danielle.pelat@cso.nato.int) **no later than 6 March 2013**.

It is the responsibility of the author to ensure that his/her abstract receives any necessary clearance before it is forwarded, and sufficient time should be allowed for this.

This date is important and must be met in order to ensure consideration.

Thank you for your contributions which are highly appreciated by all the NATO community.

(Signed)

Ms Danielle Pelat

Human Factors & Medicine Panel Assistant (danielle.pelat@cso.nato.int)

Attachment 1

SPECIAL NOTICE FOR US AUTHORS *AND*
NON US CITIZENS AFFILIATED WITH US ORGANIZATIONS

Abstracts of Papers from the U.S. must be sent **ONLY** to the following P.O.C.:

NATO STO U.S. National Coordinator
OASD (R&E)/International Technology Programs
4800 Mark Center Drive
Alexandria, VA 22350-3600
E-mail: usnatcor@osd.mil
Tel: +1 571 372 6538
Fax: +1 571 372 6548

PLEASE NOTE THE FOLLOWING:

1. All US Authors must submit one electronic copy to this POC at least TWO Weeks prior the **6 March 2013.**

2. In addition to their abstract, all U.S. Authors must provide to the POC:

   - A certification (can be signed by the author) that there are no proprietary or copyright limitations;
   - Internal documentation from their local public affairs or foreign disclosure office (or equivalent) that clearly shows:
     - Title of the paper or presentation
     - Level of clearance (i.e., Approved for public release)
     - Name, title, and organization of the approval authority
   - Details of Author(s) Form (Attachment 2)
   - NOTE: Only complete packages (abstract plus all items listed above) will be accepted by the US POC.

   After review and approval, the US POC will forward **all US abstracts with the Details of Authors Form** to the HFM Panel Assistant Office (danielle.pelat@cso.nato.int).
   All US abstracts must be received directly from the US POC.
   US abstracts will not be accepted directly from authors.

3. In the event, there are any questions or concerns with these requirements, U.S. authors are encouraged to contact the US POC as early as possible. Delays in meeting POC deadlines will impact the timely submission of your abstract.

Attachment 2

"DETAILS OF AUTHORS" FORM

The purpose of this form is to correctly identify the author(s), the role of authors and co-authored papers, and to enable further communication.

INSTRUCTIONS

Co-authored Papers

- Authors should be listed in the order in which they should appear on the programme.
- Unless otherwise specified, the first listed author will be presumed to be the SENIOR and SPEAKER AUTHOR, i.e. the author having the major responsibility for the content of the paper, and a major interest in the result of the selection of papers.

All Papers

- The left-hand side box should include the following details:
  - Title or Rank, NAME, Surname
  - Nationality (mandatory)
  - Position, e.g. Head of Biodynamics
  - Affiliation, e.g. Firm or Organization
  - Telephone number - please show area/city code (unless you specify "home," it will be assumed to be your office number)
  - Fax number
  - E-mail address (VERY IMPORTANT – we are trying to use electronic Communications wherever possible)
- The right-hand side box is to include:
  - Correct postal address (Office) including POSTAL CODE

PLEASE COMPLETE THIS FORM ELECTRONICALLY IN CAPITAL LETTERS

Thank you for your co-operation

DETAILS OF AUTHORS" FORM: **for HFM-231 SYMPOSIUM, Orlando, USA, 14-16 October 2013**

Title of Paper:

Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: E-mail address:	Office Address:
Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: E-mail address:	Office Address:
Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: E-mail address:	Office Address:
Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: E-mail address:	Office Address:

Please complete this form and send a copy with your abstract ***before 06 March 2013*** *:*

- ***US authors:*** *To* usnatcor@osd.mil (2 weeks prior to the deadline)
- ***Authors from Other Countries***: *All Programme Committee Members and to CSO/HFM Panel Office* (danielle.pelat@cso.nato.int)

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