Contribution ID: **1490** Type: **Invited Speaker / Conférencier invité**

POLAR Science for Physicists

Thursday 16 June 2016 11:00 (30 minutes)

Canada occupies 25% of the Arctic and, of our three ocean coasts, the Arctic Ocean's is by far the longest while being the least known. The strategic and economic importance of the North for Canadians and the world cannot be minimized. More than 100 000 people live in the north, a majority of whom are First Nations and Inuit. In view of the importance of the Polar Regions to Canadians, our government decided a year ago to create its own national polar agency, Polar Knowledge Canada (POLAR), with a goal of reconciling our knowledge base of the Arctic with the challenges we face. The objective of this presentation is enlighten my fellow physicists to the challenges and opportunities that comes from polar research.

There are presently some significant gaps in our polar knowledge which much be filled to safeguard the region and its people, as well as Canadians in general. The Arctic suffers from a phenomenon of Polar Amplification of its climate temperature as compared to pre-industrial times. While in the south we must adapt to a present 0.8℃ rise, in the north, this value is more like an additional 6℃. For example, no fewer than five of the global climate change tipping points, locations where a small perturbation to the climatic stable state triggers a transition to an alternate climatic state, are located within our national boundaries or are tributary to the Canadian Arctic. In Earth System Science, a tipping point occurs when a small perturbation to a global climatic stable state, triggers a disproportionate transition to an alternate climatic state. Challenges to our Canadian sovereignty is of usual occurrence there, as marked by the frequent presence of foreign vessels. Our people, north of the 70th parallel, must burn costly, low-efficiency diesel to power and heat their communities, resulting in high economic and environmental impacts that constrain both their livelihood and quality of life. Sadly, Canada does not have the requisite 25% of the world's polar-interested scientists to fill the knowledge gaps inhibiting solutions from being implemented. Photonics as a prime role to play in the Arctic. POLAR must work with international and national partners to achieve its national mission.

Presenter: Mr RICHARD, Boudreault (Chair, Polar Knowledge Canada)

Session Classification: R-MEDAL2 CAP Medal Talk - Richard Boudreault, Chairman Polar Knowledge Canada (CAP-INO Medal for Outstanding Achievement in Applied Photonics)

Track Classification: Herzberg Public, Plenary, and Medal Talks / Conférenciers des sessions Herzberg, plénières et médaillés (CAP-ACP)