Fundamentals in the design of infrared systems

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Electro-optical systems fulfill an increasing number of applications in both civilian and military domains. This course deals more particularly with the design of infrared equipments intended for use in defense, aeronautics, or space. Nowadays, they are being used in most areas of defense, such as: surveillance, target detection, recognition or identification, missile guidance, etc.
This course comprises two parts: The first part defines the main optical constituents of an infrared system: infrared scene, atmosphere, optics, detector. The second part of the course deals with some basic rules in infrared system design, using criteria such as NETD (noise equivalent temperature difference, MRTD (minimum resolvable temperature difference)…

Intended audience

This course is intended for research and development engineers and scientists who are involved in the design of infrared systems, and also for users of such systems who feel the need for a better understanding of the inside working parameters and specifications.

Biography

Isabelle Ribet graduated in optics from the Institut d'Optique (Orsay, France) in 1998, and got a PhD from ONERA in 2001. Since then she has been working at ONERA in the field of infrared photodetectors and infrared systems for defense applications. In parallel, she joined the Institut d'Optique as Associate Professor in 2014, where she is teaching optical radiometry and the design of electro-optical systems, at the master's level as well as in continuing education courses.