



Paul Cavalier

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Physics

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France

Thailand

I work on magnetic geophysical exploration techniques applied to archaeology and national heritage. I completed my PhD in Grenoble (France) on innovative superconducting optoelectronics for astrophysics, after which I chose to explore new horizons. I like working in projects involving several fields of expertise and bridge gaps to create new perspectives. I am particularly motivated by challenges requiring a high sense of initiative and adaptability. I have also invested myself in various associations and foundations, cultural and humanitarian, as I consider important to keep an open vision and be active on multiple levels.

## CURRENT RESEARCH

Topic	Methodology	Application
Magnetic geophysical exploration for National Heritage : instrumentation and data analysis schemes	<ul style="list-style-type: none"><li>• Remote sensing devices for archaeology</li><li>• Exploration geophysics</li><li>• Inverse problems</li><li>• Optimization problems</li><li>• Tensor analysis</li></ul> After review of remote sensing devices and data analysis schemes, I develop innovative instrument concepts and algorithms.	<p>Near surface exploration geophysics : archaeological prospecting (ground and maritime), identification of sites of interest.</p> <p>Possible applications in soil analysis for agronomy, or general geophysical prospecting (minerals...).</p>

## UKZN Publications

## Past Researches

Applied physics between nanoelectronics, integrated optics and cryogenics ; Worldwide 1st superconducting optoelectronic device, demonstration of light interference in-situ detection.

- "Light Interference Detection On-chip by Integrated SNSPD Counters": **P. Cavalier**, J.-C. Villegier, C. Constancias, P. Feautrier and A. Morand, *AIP Advances*, vol.1, 2011.

- "SWIFTS Waveguide Micro-Spectrometer Integrated on Top of a 1D-NbN SNSPD Array": **P. Cavalier**, C. Constancias, P. Feautrier, L. Maingault, A. Morand and J.-C. Villegier, *IEEE TAS*, vol. 21, 2011.

## Future Interests

Research in interdisciplinary projects, Academia

Consultancy , Participation in Research organization

## Extra Interests

Sports (football, capoeira, boxing) , Argentine Tango , Travels, Associative action