

Sujet thèse / PhD subject 2024

Titre Thèse	Terahertz Spoof Plasmons and Coding Metasurfaces	
(Co)-Directeur	Tahsin Akalin	E-mail : Tahsin.Akalin@univ-lille.fr
(Co)-Directeur	Tie Jun Cui	E-mail : tjcu@seu.edu.cn
(Co)-Encadrant (s)		E-mail :
Laboratoire	IEMN / Duke University	Web :
Groupe(s)	Tahsin AKALIN Tie Jun CUI	Web : Tahsin AKALIN Tie Jun CUI
Projet phare (principal)		
Demande thèse labellisée IEMN	Non	
Financement demandé	Contrat Doctoral Etablissement	ULille <input checked="" type="checkbox"/> Centrale Lille <input type="checkbox"/> JUNIA <input type="checkbox"/>
	Région – Autre <input type="checkbox"/> Préciser :	Co financement (Préciser l'origine, demande en cours, acquis ou pas) :
Financement acquis <input type="checkbox"/> Financement partiellement acquis <input type="checkbox"/>	Contrats de Recherche <input type="checkbox"/> Préciser :	Autre <input type="checkbox"/> Préciser :

Abstract: The objective is to investigate original structures based on **spoof plasmons** such as Planar Goubau Lines (PGL) and **metasurfaces**. The PhD candidate will have the possibility to design transmission lines and antennas which take benefit of the properties offered by single conductor propagating structures. In the framework of future 6G communications, leaky wave antennas and coding metasurfaces will be designed, fabricated and measured at millimeter and terahertz frequencies. For the design, 3D electromagnetic tools like CST will be used. The PhD candidate will also fabricate the samples in cleanrooms and perform the characterization with collaborating partners. The aim is to fabricate full communications systems which include **antennas** and also **Reconfigurable Intelligent Surfaces** based on **coding metasurfaces** and **Spoof Plasmons**.

Supervisors :

Tie Jun CUI is a Professor at **Southeast University (China)** and **Academician (CAS Chinese Academy of Sciences in China)**. He is a one of the world leaders in the fields of **Metasurfaces** and particularly for communications applications. He is also a world expert in the fields of microwaves. (h-index=122 and more than 62 000 citations).

<https://scholar.google.com/citations?user=-h-1eJsAAAAJ&hl=fr&oi=ao>

Tahsin Akalin is an Associate Professor. He is an expert in the field of **terahertz** electromagnetic waves, photonics, **plasmonics**, Planar Goubau Lines, antennas, **metasurfaces** including for **biosensing** applications and wireless communications (5G, 6G and beyond). (h-index=24 and more than 2 500 citations).

https://scholar.google.fr/citations?user=YFx_xtsAAAAJ&hl=fr&oi=ao