

# THOMAS LACOUR

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## 📄 SUMMARY

Young PhD (28 years old) in physical acoustics graduated from Sorbonne University (Paris). I undergraduated in Physics and Chemistry before specializing in Physical acoustics. My PhD focused on numerical and theoretical modeling of acoustics vaporization dynamics of liquid core nanoparticles in the context of biomedical applications. This research was a cross-disciplinary subject, combining acoustics, nonlinear elasticity, phase change phenomena and, more generally nonlinear physics. Curious, autonomous and sociable, I currently hold a position of temporary research and teaching assistant at Sorbonne University.

🔧 communication, autonomy, adaptability,  
multiphysics analysis, team work

## RESEARCH INTERESTS

ACOUSTICS	bubble dynamics, fluid/nanoparticles interactions, phononic cristals, imaging
MECHANICS	hyperelasticity, phase change, hertz contact, diffusion
NUMERICS	FDTD, signal-processing

## SKILLS

		LANGUAGES
FRENCH	mother tongue	
ENGLISH	fluent	
		COMPUTER
BASIC	📄, C	
INTERMEDIATE	Python	
ADVANCED	📄, Matlab	
		TEACHING (380H)
BACHELOR	continuum mechanics, stability, thermodynamics, acoustics	
MASTER	signal processing, stability and vibrations	

## REFERENCES

### Dr François COULOUVRAT

Institut Jean Le Rond d'Alembert, Paris  
Centre National de la Recherche Scientifique  
francois.coulouvrat@sorbonne-universite.fr

### Dr Tony VALIER-BRASIER

Institut Jean Le Rond d'Alembert, Paris  
Sorbonne Université  
tony.valier-brasier@sorbonne-universite.fr

## EDUCATION

- 2018 **PHD IN ACOUSTICS** 📄  
Institut d'Alembert, Sorbonne University  
*Modeling acoustic droplet vaporization of an encapsulated droplet within hyperelastic shell or surfactants*  
· improve theoretical modeling with shell nonlinearities  
· perform and handle numerous simulated datas
- 2015 **M2 ACOUSTICS**  
Sorbonne University  
*Modeling acoustic droplet vaporisation*
- 2014 **M1 ACOUSTICS**  
Le Mans University  
*Study of nonlinear singularities of a one degree of freedom oscillating system.*
- 2013 **L3 ACOUSTICS**  
Le Mans University  
*Study of negative refraction in phononic cristal*
- 2012 **BSC PHYSICS AND CHEMISTRY**  
Paris-Est University  
*Modeling of leak detection by acoustic correlation on drinking water supply*
- 2008 **SCIENTIFIC BACCALAURÉAT**

## CONTRIBUTED TALKS (9)

- 2019 AFPAC (FR)
- 2018 21<sup>st</sup> ISNA (USA), CFA 2018 (FR), Ultras. Contr. Imag. symposium (NL), 📄
- 2017 Acoustics'17 Boston (USA), AFPAC (FR)
- 2016 Acoust. Fluid. Sum. Sch. (FR), CFA 2016 (FR), AFPAC (UK)

## PUBLICATIONS

- [1] T. Lacour, M. Guédra, T. Valier-Brasier, et F. Coulouvrat. "A model for acoustic vaporization dynamics of a bubble/droplet system encapsulated within a hyperelastic shell." *J. Acoust. Soc. Am.* **143**, 23–37 (2018). 📄
- [2] T. Lacour, T. Valier-Brasier, et F. Coulouvrat. "Vaporisation acoustique d'une gouttelette encapsulée." *CFA/VISHNO* 891–897 (2016). 📄
- [3] T. Lacour, T. Valier-Brasier, et F. Coulouvrat. "Ultimate fate of a dynamical bubble/droplet system following acoustic vaporization." In progress

## OTHERS

- president (2 years) of master alumni association
- technical help for seminar youtube video diffusion
- computer aided music composition
- volunteer in music festival organization