



# BATWOMAN

Basic Acoustics Training - & Workprogram  
On Methodologies for Acoustics - Network

## OPEN POSITION IN THE FIELD OF ACOUSTIC ENGINE COMPARTMENT SIMULATION

**BATWOMAN** (Basic Acoustics Training - & Workprogram On Methodologies for Acoustics - Network) is the **Initial Training Network (ITN)** No. 605867, funded under the FP7 Marie Curie programme of the EC. **Duration:** Sep. 1, 2013 - Aug. 31, 2017.

**BACKGROUND:** The BATWOMAN ITN ([www.batwoman.eu](http://www.batwoman.eu)) aims at structuring research training in basic and advanced acoustics and setting up a work program on methodologies for acoustics for skills development in a highly diverse research field offering multiple career options.

The consortium consists of renowned public and private partners from musical acoustics, room acoustics and automotive acoustics who will merge their existing knowledge, extend it jointly and complement it with insights of recent sound perception research, (Fig. 1.) This will exploit existing synergies and overcome obvious fragmentation in research, methodology and basic as well as advanced acoustics training.

Providing interdisciplinary training and joining or exchanging methodology in research, is expected to have a strong impact on the skills of trained researchers as far as sound design capabilities, modelling accuracy, efficiency and applicable frequency range is concerned. Adding the understanding of human auditory perception will help to tackle the hard problem of sound quality parameters and to better understand stimulating effects on well-being and cognition of people exposed to sound, but also harmful effects, like annoyance or even deteriorating cognitive performance.

The ITN will provide interdisciplinary and intersectoral research training

for excellence. It will structure existing PhD-level training in acoustics setting up European curricula with compatible and recognised courses offered by universities and private enterprises. Simultaneously it will push the state of the art in vibro-acoustic modelling and in interdisciplinary design optimisation by initiating a joint research effort increasing critical mass. The complementary structure of the network will make it not to break apart after the ITN project period. It is rather expected that the methodologies used to analyse, design and optimise transport vehicles, rooms and musical instruments will grow together and will be further developed in an interdisciplinary joint effort.

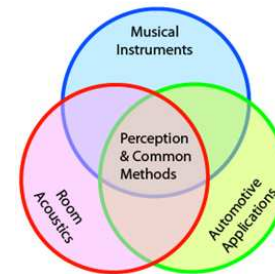


Fig. 1: BATWOMAN R&D scope.



Fig. 2: BATWOMAN consortium.

**CONSORTIUM:** contains partners (6 universities, 1 research institute and 4 companies) specialised in three specific application fields of acoustics: Automotive sector, room acoustics and musical instrument acoustics, see Fig. 2. The industrial partners bring in application knowledge and expertise, and the research partners bring in a range of engineering methodologies, the capability of PhD research training, provision of courses and dissemination of results.



# BATWOMAN

Basic Acoustics Training - & Workprogram  
On Methodologies for Acoustics - Network

**COORDINATOR: ViF** - Kompetenzzentrum - Das virtuelle Fahrzeug  
Forschungsgesellschaft mbH, <http://www.v2c2.at/> in Graz, Austria.  
BATWOMAN Coordinator: **Martin Wifling**, [Martin.Wifling@v2c2.at](mailto:Martin.Wifling@v2c2.at)

**MARIE CURIE ELIGIBILITY CRITERIA** – in short:

- **Early-Stage Researcher (ESR)**: holds an MSc degree in Engineering and has less than 4 years of experience and has not yet been awarded a doctoral degree<sup>1</sup>.

**Within BATWOMAN, ViF ([www.v2c2.at](http://www.v2c2.at)) and AVL ([www.avl.com](http://www.avl.com)) are looking for an ESR (Duration 36 months) focusing on “Aspects of FE-structure interaction with WBT-sound field simulations“**

Objectives: Understanding of the Wave Based Technique (WBT) for combined interior-exterior problems.

- Formulation of patch transfer function (PTF) and transfer path analysis (TPA) strategies for coupling of condensed structural finite element method (FEM) and acoustic wave based technique (WBT).
- High frequency (> 3 kHz) prediction of the coupled vibro-acoustic systems.
- Validation of the proposed approaches on a simplified car-like structure using frequency and real time-domain recordings.
- Validation of necessary simulation accuracy and frequency range for sound quality assessment by virtual prototyping guidelines for transferring the developed approaches towards automotive industry applications.

Tasks and methodology: Transfer path analysis of power and structural models.

- Get clear relation between a response and the contribution of the different excitation sources.
- Methodology to calculate, analyze and visualize the transfer path (energy flow) with the structure from an excitation point.

- Methodology to (semi-) automatically modify the transfer functions.
- Condensing results in a PhD.

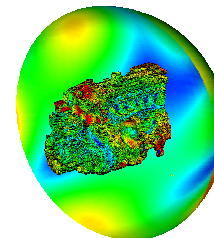
**CANDIDATE PROFILE:** All candidates must be fluent in spoken and written English. The R&D is highly multidisciplinary. An ideal candidate has an M.Sc. in engineering (e.g. physics, mechanics, mathematics, electronics) and an adequate mathematical & computational background.

- Knowledge in acoustics of fluids and structures is an asset.
- Knowledge of programming languages (e.g. C/C++, Fortran) and/or knowledge of Matlab is highly welcome.
- Affinity with vehicle and/or engine engineering is an advantage.
- All members of the network are equal opportunity employers, both female and male candidates are invited to apply.

The research activities will mainly be carried out at Partner AVL List GmbH located in (Graz, Austria), preferably combined with research visits and/or short-term secondments to other members of the network.

**APPLY NOW!** Start date target: 1 January 2014

**APPLICATION:** To apply, please send a **detailed CV** together with a **letter of motivation** and **names of reference(s)** to



**Dr. Günter Offner**  
[guenter.offner@avl.com](mailto:guenter.offner@avl.com)  
AVL List GmbH  
Advanced Simulation  
Technologies  
Hans-List-Platz 1  
8020 Graz



# BATWOMAN

## Basic Acoustics Training - & Workprogram On Methodologies for Acoustics - Network

---

The remuneration will be in line with the EC rules for Marie Curie grant holders and consists of a salary augmented by a net mobility allowance. <http://cordis.europa.eu/fp7>.

-----  
<sup>1</sup> The research experience includes the period since gaining a university degree giving the candidate access to doctoral studies (the degree must entitle the holder to embark on doctoral studies, without having to acquire any further qualifications) or already in possession of a doctoral degree, independently of the time taken to acquire it. Among others, following criteria apply for eligibility:

- the researcher shall not be a national of the State in which the hosting partner's research team is located
- at the time of appointment, the researcher may not have resided or carried out her/his main activity in the country of the hosting partner for more than 12 months in the 3 years immediately prior to her/his appointment
- women are especially encouraged to apply.