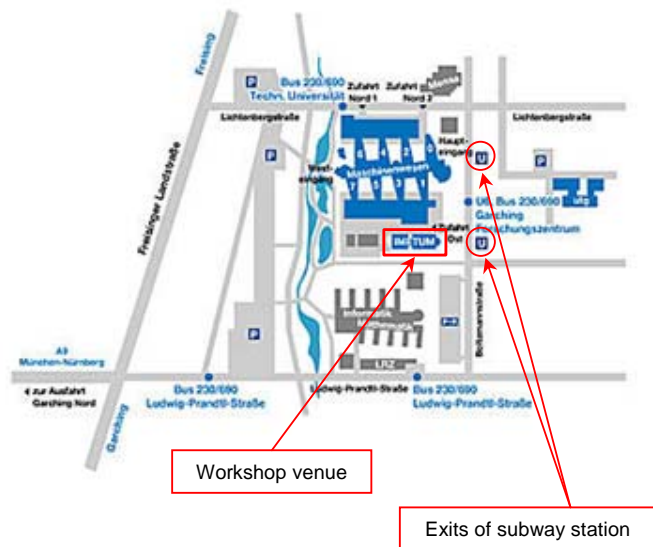


## Venue

Zentralinstitut für Medizintechnik/Institute of Medical Engineering (IMETUM)

Boltzmannstrasse 11  
85748 Garching  
Tel: 089-289 10800  
Fax: 089-289 10801



## Dinner

Directions to the restaurant:



## Project titles

(A)	Experimental and numerical investigation on the flow-induced stresses on the alveolar-epithelial-surfactant-air interface
(B)	Fluid mechanical and clinical analysis of regional compliance and the resulting lung mechanics for an individual modeling of ventilation
(C)	Development of a model-based lung protective artificial respiration strategy for dynamic mechanostabilization of the alveoli
(D)	Expansion of pulmonary alveoli during mechanical ventilation – Analysis of mechanical stresses and their biological effects
(E)	Quantitative analysis of dead-space-ventilation in animal models with acute lung injury
(F)	Optimization of the variable mechanical ventilation by numerical modelling of lung mechanics
(G)	High-frequency oscillatory ventilation: Analysis of transport mechanisms using computational fluid dynamics and magnetic resonance imaging of gases
(H)	Non-linear effects of mass transport in the upper human airways under high-frequency ventilation (HFV) and their use for efficient mechanical ventilation
(I)	Biofluidmechanics and physiological characteristics of ventilation in the alveolus and its capillaries



Final Meeting of the  
German Research Foundation (DFG)

## Priority Program "Protective Artificial Respiration"

1<sup>st</sup> and 2<sup>nd</sup> of March, 2012

## Day 1: Thursday, 1<sup>st</sup> of March

- 9:00 **Welcome**
- 9:10 **Keynote: Finding ventilatory strategies that minimize the progression of ventilator-induced lung injury. (A)**  
Bates, J.
- 9:50 **From animal model to cells: A top-down approach for investigating alveolar epithelium during mechanical strain. (A)**  
Gärtner, M., Rentzsch, I.
- 10:25 **Regional differences of alveolar mechanics and morphology in a porcine model of acute lung injury. (B)**  
Bickenbach, J.
- 10:50 **Lung flow analysis and recruitment proposals. (B)**  
Soodt, T.
- 11:15 **Coffee break**
- 11:40 **Analysis of global respiratory system mechanics and alveolar stabilization by expiratory flow control. (C)**  
Schumann, S.
- 12:05 **Hierarchical modelling for mechanical ventilation therapy: efficiency and identification issues! (C)**  
Möller, K.
- 12:30 **Towards a “virtual lung” – Building blocks of a comprehensive computational lung model. (C)**  
Yoshihara, L.
- 12:55 **Lunch**
- 14:00 **Keynote: Mechanisms of fibrosis in lung disease: From tissue to relevant in vitro models.**  
Eickelberg, O.

## Day 1: Thursday, 1<sup>st</sup> of March

- 14:40 **Local analysis of pulmonary tissue mechanics in the ventilated rat. (D)**  
Schwenninger, D.
- 15:05 **A realistic constituent based material model for lung parenchyma. (D)**  
Rausch, S.
- 15:30 **Coffee break**
- 16:00 **Quantitative analysis of dead space in ventilated rats and mice. (E)**  
Nickles, H. and Dassow, C.
- 16:25 **Quantitative analysis of dead-space-ventilation in animal models with acute lung injury. (E)**  
Wang, X.
- 16:50 **Multi-dimensional modeling of human lungs during spontaneous breathing and mechanical ventilation. (F)**  
Ismail, M.
- 17:15 **Organized patterns of random variable ventilation improve lung function and damage. (F)**  
Gama de Abreu, M.
- 17:40 **End of lecture program of day 1**
- 19:30 **Dinner at “Wirtshaus in der Au”**

The dinner will take place at the *Wirtshaus in der Au* restaurant at 19:30 on Thursday evening.

*Wirtshaus in der Au*  
Lilienstr. 51, 81669 München  
Tel: 089-448 1400

### Optional meeting points:

- 18:35 at the Garching Forschungszentrum subway station (U6, departure 18:43)
- 19:15 outside the Isartor station, exit “Deutsches Museum” in front of the flower shop
- 19:30 at the restaurant

## Day 2: Friday, 2<sup>nd</sup> of March

- 9:00 **Keynote: Biophysical determinants of alveolar epithelial repair.**  
Hubmayr, R.D.
- 9:40 **Direct numerical simulation of turbulent high-frequency oscillatory ventilation in a pipe. (G)**  
Feldmann, D.
- 10:05 **Magnetic resonance imaging during high frequency oscillatory ventilation. (G)**  
Friedrich, J.
- 10:30 **Experimental and numerical investigation of gas transport during high-frequency oscillatory ventilation. (G)**  
Krenkel, L.
- 10:55 **Coffee break**
- 11:30 **Unsteady mass transport in the upper human airways during CMV and HFOV. (H)**  
Bauer, K.
- 11:55 **Unsteady mass transport in the upper airways – A relevant problem in newborns. (H)**  
Rüdiger, M.
- 12:20 **Lunch**
- 13:30 **Keynote: Lung stretch induces a zinc-dependent protective program.**  
Tschumperlin, D.
- 14:10 **Flow in pulmonary capillary network models. (I)**  
Schirrmann, K.
- 14:35 **Alveolar dynamics and mechanotransduction in intact, overventilated and acutely injured lungs. (I)**  
Michalick, L.
- 15:00 **Final discussion**
- 15:20 **Farewell coffee**