

## Program day 1

08.30 am: Welcome and introduction

### Basics of gears and transmission technology

08.45 am: Gear transmissions and their components

09.15 am: Geometry of gears

10.00 am: Coffee break

### Machining and metrology of gears

10.15 am: Process chains and material selection

10.30 am: Primary shaping and forming processes in gear production

11.15 am: Gear soft machining I

12.00 pm: Lunch

01.00 pm: Gear soft machining II

01.45 pm: Fine machining I: Geometrically defined cutting edge

02.15 pm: Fine machining II: Geometrically undefined cutting edge

03.45 pm: Coffee break

04.00 pm: Exercise I: Selection of process chains

### Metrology of gears

04.45 am: Exercise II: Quality assessment

05.30 pm: End of day 1

07.00 pm: Dinner

## Program day 2

### Load carrying capacity of gears

08.30 am: Load and failure modes of gears

09.30 pm: Exercise III: Assessment of gear failures

10.00 am: Coffee break

10.15 am: Gear design according to ISO 6336

11.15 pm: Investigation of load carrying capacity

12.00 am: Lunch

### Noise and excitation behavior of gears

01.00 pm: Excitation behavior of gears

02.00 pm: Coffee break

02.15 pm: Investigation and optimization of the excitation behavior of gears

03.15 pm: Manufacturing simulations and tooth contact analysis

03.45 pm: Final discussion

04.00 pm: End

## About Us

### Fraunhofer CMI – Boston

Collaborating closely with Fraunhofer-Gesellschaft, Europe's largest application-oriented research organization, Fraunhofer CMI leverages a strong international network of collaborative partners, including Boston University, Fraunhofer IPT Institute for Production Technology, and WZL at the Technical University of Aachen in Germany. We offer product development assistance and manufacturing solutions to local and international industries. We work with clients to develop new technologies, improve manufacturing operations, and benchmark against the world's best practices. Our unique access to a global research base and our vast experience give customers an unparalleled advantage.

### Gear Group

The Gear Group at Fraunhofer CMI operates in close collaboration with WZL. Recognized as one of the world's leading institutions in transmission technologies, WZL conducts research spanning gear design, manufacturing, simulation and testing, all under one roof. Additionally, WZL offers a customized professional, educational program that has attracted over 500 members of the German gear industry.

CMI is now offering this expertise to the American gear industry. With our on-site experts and through collaboration with our partners at WZL and Fraunhofer IPT in Aachen, we combine over 50 years of history in gear related research to provide you with custom solutions that meet your toughest demands.

## Organizational Information

### Venue

Fraunhofer USA CMI  
15 Saint Mary's Street  
Brookline, MA 02446  
USA

### Fee

\$1,495  
The fee includes all seminar materials, lunches and dinner.

### Registration

You can find further information and registration forms on our website:  
[www.cmi.fraunhofer.org/gears](http://www.cmi.fraunhofer.org/gears)  
Please return the completed form by e-mail, mail or fax as soon as possible to reserve your spot, as the number of participants is limited.

### Your contact

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### Target audience

This course is "geared" towards designers and manufacturing engineers working in gear and transmission technologies, as well as for shop floor and department managers involved with the production and sale of gears and gearboxes.

### Primary Instructor

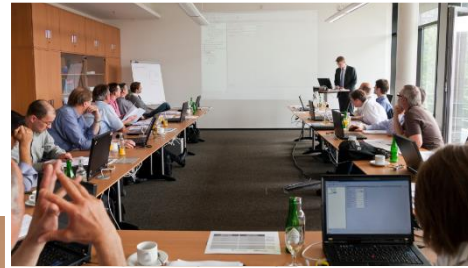
Dr.-Ing. Marco Kampka, Fraunhofer USA

### Objective

In this course on gear and transmission technologies, basic properties of gears as machine elements, gear manufacturing technologies, methods for quality control, as well as testing and analysis of load carrying capacity and running behavior are presented. The course focuses on methods of interpretation, analysis and solving challenges in the design, manufacturing and application of gears.



## 2-Day Course Fundamentals of Gear and Transmission Technology



 **Fraunhofer**  
USA

**BOSTON**  
UNIVERSITY

In collaboration with:

 **Fraunhofer**  
IPT

**WZL** | **RWTH AACHEN**  
UNIVERSITY