# 基于 CONTACT 软件的轮轨接触力学数值计算高级培训班

## An Advanced Training Course Focusing on Numerical Simulation of Wheel-Rail Contact Mechanics Based on the CONTACT Software

# *Invitation*

## Overview of the Training Course

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| 主办单位 **Sponsor** | 荷兰 VORtech 公司（VORtech BV, The Netherlands） | | | |
| 承办单位 **Organizer** | 四川同算科技有限公司（Sichuan Tongsuan Technology Co., Ltd., China） | | | |
| 联系方式 **Contacts** | Phone: (+86)139-8037-3889, Email: mouxiao@tongsuan.cn | | | |
| 第一站：北京 **Beijing** | 2019/05/16 | 09:00-12:00 14:30-17:30 | 北京京仪大酒店 Beijing Jingyi Hotel | 北京市海淀区 大钟寺东路 9 号 |
| | 2019/05/17 | 09:00-12:00 14:30-17:30 | | |
| 第二站：成都 **Chengdu** | 2019/05/20 | 09:00-12:00 14:30-17:30 | 成都启雅尚国际酒店 ChengDu Trika Tsang International Hotel | 成都市金牛区 金鱼街 18 号 |
| | 2019/05/21 | 09:00-12:00 14:30-17:30 | | |
| 课程目标 **Purpose** | 本课程基于著名的 CONTACT 软件，系统地介绍现代轮轨接触力学及其计算方法。CONTACT 软件由 J.J. Kalker 教授创造，后经 Edwin Vollebregt 博士进一步开发。(*This course presents a comprehensive understanding of wheel/rail contact mechanics and numerical simulation methods based on the famous CONTACT software created by Prof. J.J. Kalker and extended by Dr. Edwin Vollebregt.*) | | | |
| 讲授内容 **Contents** | <ul><li>J.J. Kalker 与 CONTACT 软件 (*Introduction to J.J. Kalker & CONTACT*)</li><li>法向问题：各种理论 (*Normal problem: different theories*)</li><li>法向问题：型面设计等应用 (*Normal problem: application, e.g. profile design*)</li><li>法向问题：几何接触搜寻算法(*Normal problem: contact search algorithm*)</li><li>切向问题：各种理论(*Tangential problem: different theories*)</li><li>切向问题：考虑蠕滑的滚动 (*Tangential problem: rolling with creepage*)</li><li>切向问题：滑动(*Tangential problem: shifting and sliding*)</li><li>摩擦问题：塑性、第三层介质、负斜率效应 (*Friction problem: plasticity, 3rd body layer, falling friction effects*)</li><li>外部调用：CONTACT add-on for UM, CONTACT Library for Matlab, Fortran and C programs</li></ul> | | | |
| 操作练习 **Exercises** | <ul><li>安装软件和加载许可文件 (*Install software & license*)</li><li>中国轮轨型面接触斑 (*Explore Contact patch for Chinese rail/wheel profiles*)</li><li>滚动接触计算、绘制切应力图(*Rolling contact tests, plot tangential stresses*)</li></ul> | | | |
| 讨论交流 **Discussions** | <ul><li>*Heuristics – half-space – FEM*</li><li>*Heuristics for day-to-day usage, forces in MBS*</li><li>*CONTACT in off-line mode for wear and RCF*</li><li>*CONTACT in on-line mode for conformal & derailment*</li><li>*FEM for gaps & cracks, without feed-back on overall motion*</li></ul> | | | |

## The History of CONTACT Software

| 1982 | DUVOROL: The first version of CONTACT by J.J. Kalker. |
|------|-------------------------------------------------------|
| 1986-1990 | CONPC90: The direct method for steady state rolling was added to the program |
| 1992-1994 | CONTACT'93: The code has been restructured, modernized, and speeded up many times. |
| 2008 | Further development was done by Dr. Edwin Vollebregt.<br>Simplifying the usage and improving the extendibility, robustness, and speed of operation. |
| 2009-2014 | CONTACT v9.1-v14.1<br>Extensions for conformal contact, third body layers, and falling friction |
| 2015-2019 | CONTACT v15.1-v19.1<br>Introduction of the CONTACT library version, and automated analysis of wheel/rail contact problems. |

## An Introduction to Dr. Edwin Vollebregt



荷兰 VORtech 公司创始人、接触力学专家 Edwin Vollebregt 博士毕业于荷兰代尔夫特理工大学，现任国际接触力学学术会议委员会委员。他长期在荷兰代尔夫特理工大学学习（硕士、博士）和研究（博士后、研究员）。近年来，他在 J.J. Kalker 的 CONTACT 软件基础上，做了许多进一步的开发工作。

*Dr. Edwin Vollebregt, co-founder of VORtech BV, a specialist in contact mechanics, graduated from Delft University of Technology and is currently a member of the scientific committee of the International Conference on Contact Mechanics. He has studied (Master, Ph.D.) and done research (Postdoctoral, Researcher) at Delft University of Technology for a long time. In recent years, he has finished a lot of further development work based on J.J. Kalker's CONTACT software.*

## Information for Payment

| 开户银行 (Bank name) | 中国工商银行股份有限公司彭山支行 |
|---------------------|----------------------------------|
| 银行户名 (Account name) | 四川同算科技有限公司 |
| 银行账号 (Account number) | 2313400109100070919 |
| 截止日期 (Deadline) | 2019 年 5 月 10 日 |
| 收费标准 (Training fee) | CNY 3500.00/人 |

**Note**:
1. 北京和成都的培训课程内容完全一致，您可以选择其中任何一场培训。
   *The contents of the two courses in Beijing and Chengdu are the same, you can choose any one.*
2. 每场培训限额 20 人。
   *There should be no more than 20 participates for each course.*
3. 授课语言：英语。
   *Presentations and documentation are in English.*
4. 请自备笔记本电脑和正版 Matlab 软件（结果可视化需要用到）。
   *For the practical exercises, a Windows laptop is needed, with the Matlab software for visualization of the results.*

**Sichuan Tongsuan Technology Co., Ltd.**