

2009 International Symposium on Transmission Innovation and China Market Development
2009 国际汽车自动变速器技术及中国市场发展研讨会

I. Preliminary Agenda 初步日程

Day One 第一天

Date	Time	Activities	Venue
April 20	14:00-20:00	会议报到 REGISTRATION (上海喜天游大酒店)	
April 21	09:00-09:30	Opening Ceremony & Honorary Welcome Addresses <ul style="list-style-type: none"> ● Mr. Zhang Xiaoyu, Executive President of CMIF 张小虞先生, 中国机械工业联合会执行副会长, 中国汽车工程学会理事长 ● Mr. Uli Plewnia, General Manager of GIF Research Center (Suzhou) Co., Ltd 吴立先生, 吉孚动力技术(苏州)有限公司总经理 ● Mr. Tom Tan, BorgWarner China President 谈跃生先生, 博格华纳中国区总裁 ● Mr. Akira Ishii, Corporate Vice President, Jatco Ltd. 石井彰先生, 加特可自动变速器有限公司执行董事 	Shanghai Galaxy Hotel 上海银河宾馆
		Keynote Presentations 主旨演讲	
	09:30-09:55	7-Gear DSG® -The Success story Continues 七档双离合变速箱一成功历程的延续 -Mr. Christian Koch, Executive Vice-President Production and Logistics, Volkswagen Group China 大众汽车集团(中国)	
	09:55-10:00	Q & A 问答	
	10:00-10:25	Noise Comfort Optimization as a Target For Transmission Development 变速箱开发目标: 优化噪音舒适性 -Dipl.-Ing. Ingo Schulz, Project Manager CAE, Transmission Development, GIF - Gesellschaft für Industrieforschung mbh 吉埃孚工业研究有限公司	
	10:25-10:30	Q & A 问答	
	10:30-10:45	Coffee Break	
	10:45-11:10	BorgWarner DualTronic® Transmission Concepts for Efficiency, Cost & Robustness 博格华纳高效率、低成本及高可靠性的DualTronic®双离合系统方案 -Dr. Lu Jibo, Director Transmission Systems Engineering, BorgWarner (China) Investment Co., Ltd. 博格华纳(中国)投资有限公司	
	11:10-11:15	Q & A 问答	
	11:15-11:40	CVT for China Market 适合中国汽车市场的 CVT -Mr. Akira Ishii, Corporate Vice President, Jatco Ltd. 石井彰先生, 加特可自动变速器有限公司	
	11:40-11:45	Q & A 问答	
	11:45-12:10	Customer Benefit and Potential of Advancements of Automatic Transmission Systems 自动变速器的进一步发展使客户更多的得益 - Mr. Rudolph Baumann, Manager Application Engineering Automatic Transmissions, ZF (China) Investment Co., Ltd. 采埃孚(中国)投资有限公司	
	12:10-12:15	Q & A 问答	
	12:15-13:30	Lunch Break	
		Presentations 技术演讲	
	13:30-13:55	Controlled Clutch Forces 离合器控制力 -Mr. Martin Geieregger, Development Manager, GIF Research Center (Suzhou) Co., Ltd (GRC) 吉孚动力技术(苏州)有限公司	
	13:55-14:00	Q & A 问答	
	14:00-14:25	Business Unit Transmission-Transmission Control 德国大陆集团变速箱控制单元事业部-变速器控制技术 -Gerard Troy, Director, Business Development and Sales Asia Powertrain Transmission Asia Continental 德国大陆集团	
	14:25-14:30	Q & A 问答	

14:30-14:55	Current DCT Products and Future Technology Migration 最新 DCT 产品和未来技术趋势 -Mr. Rolf Najork, Executive Vice President Product Development, GETRAG Ford Transmissions GmbH 格特拉克福特变速器有限公司
14:55-15:00	Q & A 问答
15:00-15:15	Coffee Break
15:15-15:40	CVT: Continuously Driving into a Greener Future CVT 无级变速器带您驶入绿色未来 -Mr. Hein Siemerink, CVT Project Manager, Bosch (China) Investment Ltd. 博世（中国）投资有限公司
15:40-15:45	Q & A 问答
15:45-16:10	Upgrading the Manual Transmission to a Comfortable Powershift Transmission 将 AMT 升级为舒适的自动换挡变速器 -Dr. Alex Serrarens, Vice President, Drivetrain Innovation b.v.
16:10-16:15	Q & A 问答
16:15-16:40	Automatic Transmission Fluid Additive Technology for China DCTF and ATF 适合中国市场的变速箱添加剂技术—双离合器和自动变速箱油添加剂 -Dr. Harald Maelger, Relationship Manager, Global OEM Group and Manager Global DCT fluids, Afton Chemical 雅富顿公司
16:40-16:45	Q & A 问答
16:45-17:10	Automotive Transmissions – Addressing Driver Needs from the Efficiency and NVH Perspectives 满足驾驶者需求的汽车变速器—高效与舒适 -Mr. Doug Fussner, Manager Drivetrain Design and Development, Southwest Research Institute 美国西南研究院
17:10-17:15	Q & A 问答
17:15-17:40	Technical Innovation and Market Trend for China AT 中国汽车自动变速器技术现状及市场展望 - Dr. Chen Yong, Vice President & Chief Engineer, Geely Automobile Research Institute 陈勇博士，浙江吉利汽车研究院副院长及总工程师
17:40-17:45	Q & A 问答
17:45-18:30	Visit to Tabletop Show
18:30-20:30	Banquet

Day Two 第二天

Date	Time	Activities	Venue
April 22	09:00-09:25	Transmission for China-Key Developments and Future Technologies 适合中国市场的变速箱—开发关键和未来技术 -Mr. Simon Stevens, President of Ricardo China, Ricardo UK Limited 里卡多英国有限公司	Shanghai Galaxy Hotel 上海银河宾馆
	09:25-09:30	Q & A 问答	
	09:30-09:55	Fuel Economy Improvement Technology in Nissan's Automatic Transmissions 日产汽车最新变速器使用的燃油经济性改进技术 -Mr. Masaaki Uchida, Engineering Director of Powertrain Control, Nissan Motor Co. 内田 正明先生，日产汽车公司动力总成控制工程总工程师	
	09:55-10:00	Q & A 问答	
	10:00-10:25	Next Generation Hybrid Powertrain, Highly Efficient and Ready for Mass production 新一代混合动力：高效率、量产条件已成熟 -Mr. Patrick Debal, Engineer, Punch Powertrain Nanjing Co., Ltd. 南京邦奇自动变速器有限公司	
	10:25-10:30	Q & A 问答	
	10:30-10:45	Coffee Break	

10:45-11:10	Growth in Automatic Transmissions in China, Do We Have the Fluids They Require? 润滑油工业如何满足快速发展的中国变速箱市场的需求 -Mr. Fan Yigong, China Technical Manager, Infineum 润英联新加坡私人有限公司
11:10-11:15	Q & A 问答
11:15-11:40	Cost Reduction Through Thread Forming into Metal 在金属材料上应用螺纹成型技术以降低生产成本 -Mr. Andreas Egelseder, Sales Director Automotive, Arnold Fasteners (Shenyang) Co., Ltd. 阿诺德紧固件（沈阳）有限公司
11:40-11:45	Q & A 问答
11:45-12:10	Transmission Oil Pumps in Hybrid Vehicle Application 变速箱油泵在混合动力车上的应用 -Richard Muizelaar, Director of Engineering (TBC), Magna Powertrain 麦格纳动力总成
12:10-12:15	Q & A 问答
12:15-13:30	Lunch Break
13:30	Pick up for Visit to "2009 Shanghai International Automotive Exhibition"

II. Presentation Abstract 演讲报告摘要

Day One April 21

主旨演讲一（09:30-09:55）



7-Gear DSG® -The Success story Continues

- Mr. Christian Koch, Executive Vice-President Production and Logistics, Volkswagen Group China

In his speech Mr Koch will present Volkswagen Group's newest technical development in the transmission field, the DSG® which will be produced by Volkswagen's transmission plant in Dalian from the beginning of next year. Mr. Koch will show how Volkswagen Group combines the driving pleasure and low fuel consumption of a manual transmission with the comfort and uninterrupted traction force of an automatic transmission. Mr. Koch will provide more detailed information of Volkswagen Group's innovative DSG® technology which incorporates two world premiers at the same time. It is not only the first 7-speed gearbox for front transverse installation, but also the first dual clutch gearbox with "dry" dual clutch.

七档双离合变速箱—成功历程的延续

- **Christian Koch** 先生, 大众汽车集团（中国）生产与物流执行副总裁、执行管理委员会成员

柯易安先生将介绍大众汽车集团在变速器领域内的最新技术发展情况，包括明年初将由“大众汽车自动变速器大连有限公司”生产的 DSG®。

同时，柯易安先生将介绍 DSG®双离合自动变速箱如何实现将手动变速器的驾驶乐趣及低油耗的优点，与自动变速器的舒适性及不间断牵引力的优点完美地结合在一起。

柯易安先生还将提供同时结合了两种世界首创技术 DSG®的更多详细信息。它不仅是第一个前部横置的 7 速变速箱，而且是第一个配备干式双离合器的双离合变速箱。

(注: 摘要以英文内容为准)

主旨演讲二（10:00-10:25）

Noise Comfort Optimization as a Target For Transmission Development

- Dipl.-Ing. Ingo Schulz, Project Manager CAE Transmission Development, GIF - Gesellschaft für Industrieforschung mbh



Providing noise comfort to the customer under high cost and time restrictions is challenging development teams.

Developers have therefore to focus on noise targets from the beginning of development. This article discusses methods to verify gear whine targets in different design phases.

变速箱开发目标：优化噪音舒适性

- Dipl.-Ing. Ingo Schulz, 变速箱开发部 CAE 项目经理, 吉埃孚工业研究有限公司

在成本和时间限制下追求噪音舒适度，对开发团队是很大挑战。因此开发人员在项目开发一开始就注重噪音目标的实现。本文讨论的是在不同的设计阶段验证齿轮噪音的方法。

主旨演讲三（10:45-11:10）



BorgWarner Dualtronic® Transmission Concepts for Efficiency, Cost & Robustness

- Dr. Lu Jibo, Director Transmission Systems Engineering, BorgWarner (China) Investment Co., Ltd.

This paper presents automatic transmission concepts based on the proven DualTronic® technology for small low cost automobiles.

The main targets in development of these dual clutch concepts are efficiency, cost and robustness. This paper discusses the dual clutch transmission concepts along with its key components, which contribute to its excellent performance. Also mentioned are the various improvements made to the dual clutch transmission since it was first introduced in the market. Various attributes of dual clutch transmission such as overload protection, compact packaging, and low cost are discussed in detail. The specific efficiency advantages of the dual clutch transmission and comparison to other transmissions will be demonstrated based on vehicle data, test rig results, and system simulations

博格华纳高效率、低成本及高可靠性的DualTronic®双离合系统方案

- Lu Jibo 博士, 博格华纳（中国）投资有限公司变速器系统技术总监

本文阐述用于低成本小型车的基于成熟的 DualTronic®双离合技术的自动变速器方案。

开发这些双离合技术的主要目标是实现高效率、低成本和高可靠性。本文论述了双离合变速器方案以及决定其优异性能的关键部件。同时介绍自从首次引入市场以来针对双离合变速器的诸多改进。详细论述诸如过载保护、紧凑布置和降低成本等双离合变速器的各种特点。

基于车辆数据、试验台架测试结果和系统仿真，本文论证了双离合变速器特有的效率优势以及与其它变速器的对比。

主旨演讲四（11:15-11:40）



CVT for China Market

- Mr.Akira Ishii, Corporate Vice President, Jatco Ltd.

- a. 2-Pedal Vehicle Market in China
- b. CVT Performance
- c. Future CVT Development
- d. Jatco CVT Production in China

满足中国汽车市场的 CVT

- 石井彰先生, 加特可自动变速箱有限公司执行董事

- 1) 中国双踏板汽车市场
- 2) CVT 的性能
- 3) CVT 的未来发展
- 4) 加特可 CVT 生产在中国



Customer Benefit and Potential of Advancements of Automatic Transmission Systems
- Mr. Rudolph Baumann, Manager Application Engineering Automatic Transmissions, ZF (China) Investment Co., Ltd.

- a. General introduction automatic transmissions
- b. Requests by the different markets, requests by vehicle type
- c. Comparison of different concepts of automatic transmissions and evaluation

自动变速器的进一步发展使客户更多的得益

- Mr. Rudolph Baumann, 自动变速器应用工程经理, 采埃孚（中国）投资有限公司

- 1) 自动变速箱总体介绍
- 2) 不同市场和不同车型的要求
- 3) 不同类型自动变速箱之间的比较与评价



Controlled Clutch Forces

- Mr. Martin Geierregger, Development Manager, GIF Research Center (Suzhou) Co., Ltd (GRC)

Modern high-torque engines, require tight clamp loads at the clutch disk in order to transfer the available engine torque without slippage. As a result, high pedal forces are required when operating the clutch for gear shifting and vehicle launch. Combined with the need of modern 6 speed transmissions which require to shift gears more frequently the clutch actuation is felt uncomfortable and tiring by most drivers. To reduce the pedal force required to disengage hydraulically actuated clutches, GIF has developed a new clutch master cylinder. "The so called Controlled Clutch Forces" or CCF is based on a conventional master cylinder. It provides integrated mechanical servo assistance and hydraulic compensation for the increased clutch release force caused by the increased clamp load due to clutch disc wear. It is characterized by simple design using a minimum of component parts. Furthermore, thanks to its small size, it can be mounted in the package space of a conventional master cylinder.

离合器控制力

- Mr. Martin Geierregger, 开发部经理, 吉孚动力技术（苏州）有限公司

现代高扭矩发动机需要离合器盘提供更为强大的加载力，以便能够在没有打滑的情况下传递发动机扭矩。这就意味着，在发动机启动和换挡时，需要更大的离合器踏板力。加上现代 6 速手动变速箱需要更加频繁地换挡，大多数司机都能常常感到离合器传动不舒适和疲劳。为了降低离合器踏板力，GIF 开发了一种新的离合器控制缸，即离合器控制力（CCF）。CCF 基础就是传统的离合器控制缸。它提供了综合机械伺服机构，并且为由离合器盘磨损引起的分离力增大提供液压补偿。它的特点是结构简单，零部件少。此外，由于其体积小，它可以放置在传统离合器控制缸内。



Business Unit Transmission-Transmission Control

- Mr. Gerard Troy, Director, Business Development and Sales Asia, Powertrain Transmission Asia, Continental

The presentation describes the various controller technologies used on the global market, along with the transmission market status and the related trends of the TCU (Transmission Control Unit). It focuses on the Chinese transmission market, the expected growth and evolution towards cleaner and fuel efficient vehicles, together with the impact on automatic transmission choice and Continental solutions for TCU.

德国大陆集团变速箱控制单元事业部-变速器控制技术

- 杰哈德先生, 业务发展与销售总监, 动力总成系统部变速箱控制亚洲区, 德国大陆集团

本演讲描述了变速箱市场的现状，变速箱控制单元TCU的发展趋势以及应用于全球市场的各种变速箱控制技术。重点介绍了中国变速箱市场，阐述了对未来中国变速箱市场发展的预期和面向更清

洁、更高效的燃油经济性汽车的展望，并分析了选择不同类型的自动变速箱对车辆的环保和经济性能的影响，同时结合了德国大陆集团在变速箱控制单元上的解决方案。

技术演讲三（14:30-14:55）



Current DCT Products and Future Technology Migration

- Mr. Rolf Najork, Executive Vice President Product Development, GETRAG Ford Transmissions GmbH

- a. GETRAG's New DCT Portfolio
- b. Fuel Economy Advantages through DCT
- c. Hybrid and E-Drive Based on DCT

最新 DCT 产品和未来技术趋势

- Mr. Rolf Najork, 产品开发执行副总裁, 格特拉克福特变速器有限公司

- 1) 格特拉克最新产品型谱
- 2) DCT 的燃油经济性优势
- 3) 基于 DCT 的混合动力和电驱动系统

技术演讲四（15:15-15:40）



CVT: Continuously Driving into a Greener Future

- Mr. Hein Siemerink, CVT Project Manager, Bosch (China) Investment Ltd.

- a. CVT & Hybrid applications
- b. New "value CVT" solutions

CVT 无级变速箱带您驶入绿色未来

Hein Siemerink 先生, 博世（中国）投资有限公司 CVT 项目经理

- 1) 无级变速器与混合动力的应用
- 2) 为客户带来许多益处的全新 CVT 解决方案

技术演讲五（15:45-16:10）



Upgrading the Manual Transmission to a comfortable Powershift Transmission

- Dr. Alex Serrarens, Vice President, Drivetrain Innovations b.v.

- a. cost-effective upgrade of AMT
- b. ideal base transmission for parallel hybridization
- c. high efficiency and high performance automatic transmission

将 AMT 升级为舒适的自动换挡变速器

- Dr. Alex Serrarens, 副总裁, Drivetrain Innovations b.v.

- 1) AMT 的低成本升级
- 2) 用于并联混合动力汽车的理想基础变速器
- 3) 高效率和高性能的自动变速器

技术演讲六（16:15-16:40）

Automatic Transmission Fluid Additive Technology for China DCTF and ATF

- Dr. Harald Maelger, Global OEM Manager, Afton Chemical



- 1. A global view on DCTF and ATF

2. Current additive challenges for these lubricants
3. Conclusions for China

适合中国市场的变速箱添加剂技术—双离合器和自动变速箱油添加剂

- Harald Maelger 博士, Global OEM Manager, 雅富顿公司

- 1). 双离合器油和自动变速箱油概述
- 2). 新的变速箱油品对添加剂技术的挑战
- 3). 针对中国市场的添加剂技术解决方案

技术演讲七 (16:45-17:10)



Automotive Transmissions – Addressing Driver Needs from the Efficiency and NVH Perspectives

- Mr. Doug Fussner, Manager Drivetrain Design and Development, Southwest Research Institute

The best transmissions are often times the ones that are least noticed by the driver. Characteristics such as high efficiency, seamless shifting and low noise are desirable to make driving an energy efficient and comfortable experience. This paper discusses methods for evaluation of transmission efficiency and provides an introduction to transmission losses and methods for improvement. Similarly, typical NVH problems are discussed, methods for evaluation are presented and transmission production solutions are given.

满足驾驶者需求的汽车变速器—高效与舒适

- Doug Fussner 先生, 动力总成设计与开发室经理, 美国西南研究院

最好的变速器经常会造成驾驶员忽视其存在, 而变速器的高效, 平顺换挡及低噪音特性是经济性行驶及舒适性驾驶的必要条件。

本文结合变速器效率评价方法的讨论, 分析了变速器的损失, 并提供改善其效率的方法。同样地, 针对变速器的噪声振动问题也进行了讨论, 提出评价方法, 给出解决方案。

技术演讲八 (17:15-17:40)



Technical Innovation and Market Trend for China AT

- Dr. Chen Yong, Vice President & Chief Engineer, Geely Automobile Research Institute

In recent years, with China's sustained and rapid economic growth, China's automobile industry stimulated with the high-speed, large-scale development of automotive technology and innovation. The automatic transmission has entered the diverse and innovative new stage of development in China. The article outlines the various types of automatic transmission technology development in China, and focus on the Geely Automobile at AT and DCT technologies.

中国汽车自动变速器技术现状及市场展望

- 陈勇博士, 浙江吉利汽车研究院副院长及总工程师

近几年中国经济的持续快速增长, 刺激了中国汽车工业高速、大规模发展及汽车技术的自主创新, 同时拉动了中国汽车关键零部件技术的进步。在自动变速器方面, 已进入了多元化和创新发展的新阶段。文中概述了在中国各类自动变速技术的发展状况, 并重点讲述了吉利汽车在AT及DCT技术和产业化上取得的进展。

技术演讲一 (09:00-09:25)

Transmission for China-Key Developments and Future Technologies

- **Mr. Simon Stevens, President of Ricardo China, Ricardo UK Limited**



- a. Transmission Market Overview
- b. Transmission Technologies for China
- c. Transmission Designs for China
- d. Potential for DCTs in China

适合中国市场的变速箱—开发关键和未来技术

- **Simon Stevens** 先生, 里卡多中国总裁, 里卡多英国有限公司

- 1) 变速箱市场概述
- 2) 适合中国的变速箱技术
- 3) 变速箱设计在中国
- 4) DCT 在中国的未来

技术演讲二 (09:30-09:55)



Fuel Economy Improvement Technology in Nissan's Automatic Transmissions

- **Mr. Masaaki Uchida, Engineering Director of Powertrain Control, Nissan Motor**

- a. Nissan green program
- b. New Xtronic CVT for FWD vehicles
- c. New 7-speed step AT for RWD vehicles
- d. New DCT for the super performance vehicle (GT-R)

日产汽车最新变速器使用的燃油经济性改进技术

- **内田 正明**先生, 动力总成控制工程总工程师, 日产汽车公司

- 1) 日产汽车的绿色项目
- 2) 新型 Xtronic CVT 在前轮驱动汽车上的应用
- 3) 新型 7 速 AT 在后轮驱动汽车上的应用
- 4) 新型 DCT 在超级性能汽车“GT-R”上的应用

技术演讲三 (10:00-10:25)



Next Generation Hybrid Powertrain, Highly Efficient and Ready for Mass Production

- **Mr. Patrick Debal, Engineer, Punch Powertrain Nanjing Co., Ltd.**

A highly efficient hybrid powertrain targeting is developed to suit the most popular vehicle segments. The target fuel consumption reduction is 25% on the NEDC cycle, which is being realized by the implementation of this hybrid powertrain. Even higher fuel savings are possible by reducing total vehicle mass and drag resistance, improving engine efficiency and other measures.

One of the highest priorities during development was to keep the size of the complete powertrain as compact as possible. The combined volumes, the strict cost control during development adaptations for the OEM give this hybrid system the potential to become a cost efficient solution for large scale implementation.

新一代混合动力: 高效率、量产条件已成熟

- **Mr. Patrick Debal**, 工程师, 南京邦奇自动变速器有限公司

本文探讨研发适用于当下最通用的汽车类型的高效混合动力系统。通过应用这套混合动力系统, 已实现了在 NEDC 驾驶循环中油耗降低 25% 的目标。并且通过减小整车重量和牵引阻力, 提高发动机效率或其它途径, 仍有可能进一步减小油耗。

项目开发时的一个首要考虑因素即控制全部动力系的尺寸尽可能紧凑。组合数量, 研发中严格的成本控制, 使混合动力系统在大批量应用时成为一个高成本效益的解决方案。



Growth in Automatic Transmissions in China, Do We Have the Fluids They Require?

- Mr. Fan Yigong, China Technical Manager, Infineum

Transmission tech and marketing share are very different all over the world. Chinese Auto industry has made great progress, and the R&D of auto transmission is the priority tech innovation of most Chinese OEMs. There is tailored performance for different transmission. The paper is focus on tailored capability of lubricant for three transmissions: AT, CVT and DCT.

润滑油工业如何满足快速发展的中国变速箱市场的需求

-范亦工先生, 中国技术经理, 润英联新加坡私人有限公司

自动变速箱在世界各地技术类型和市场分布各有特点。中国的汽车行业发展迅速, 自动变速箱的开发和应用是各厂家技术创新的重点。不同类型变速箱, 所用的润滑油完全不同, 不能混用。本文针对目前世界上广泛应用的三类比较先进的变速箱: AT、CVT 和 DCT, 概括介绍了其对变速箱润滑油的性能要求。以备汽车行业参考。



Cost Optimization - Best Practice In Using Thread Forming Technology

- Mr. Andreas Egelseder, Sales Director Automotive, Arnold Fasteners (Shenyang) Co., Ltd.

- a. General information about Fasteners
(Metric screw systems + Thread forming screws)
- b. Cost situation: Comparison Metric screw vs. Thread forming screw
- c. Process security by using thread forming screws
- d. Thread forming technology for aluminium alloys

在金属材料上应用螺纹成型技术以降低生产成本

- Mr. Andreas Egelseder, 汽车销售总监, 阿诺德紧固件(沈阳)有限公司

- 1) 紧固件基本介绍(公制螺丝及螺纹成型螺丝)
- 2) 成本状况: 公制螺丝及螺纹成型螺丝的比较
- 3) 螺纹成型螺丝在使用过程中的安全性
- 4) 螺纹成型技术在铝合金上的应用



Transmission Oil Pumps in Hybrid Vehicle Application

- Richard Muizelaar, Director of Engineering(TBC), Magna Powertrain

变速箱油泵在混合动力车上的应用

- Richard Muizelaar, Director of Engineering(TBC), 麦格纳动力总成