

宇都宮大学イノベーション支援センター主催

# CDI招聘外国人研究者講演会

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自由曲面コンポーネント/デバイスの超精密加工：  
基礎、応用研究、及び産業応用

*Ultraprecision machining of freeform surfaced  
components/ devices: fundamentals, applied  
research, and industrial applications*

## Abstract:

In this presentation, it firstly provides a critical review on the fundamentals and key enabling technologies for ultraprecision machining of freeform surfaced components and devices, particularly in light of the first-hand experience in addressing industrial needs and drives for vari-focal lenses, automotive HUDs/LiDARs and space optics. Secondly, it discusses and explores the modelling and analysis of micro cutting mechanics and tribological aspects in ultraprecision machining those components and devices, the associated algorithms development and their full integration with ultraprecision machining and functional assessment in an integrated digital manner. Furthermore, application exemplars are provided and discussed with in-depth details against the stringent requirements in the production. Finally, the presentation concludes with a further discussion on the potential and application of the proposed approach to the broader precision engineering manufacture in an industrial scale.

イギリス ブルネル大学, テイ カイ(Cheng Kai) 教授

## Biography:

Professor Cheng is a Chair Professor in Manufacturing Systems at Brunel University London. His current research interests focus on design of high precision machines, ultraprecision and micro/nano manufacturing, smart tooling and smart machining. He is currently leading the Ultraprecision and Micro/Nano Manufacturing Theme at Brunel University London, which involves 15 academic staff, and about 50 PhD students and researchers. Professor Cheng and his team have enjoyed working closely with industrial companies internationally. They are working on a number of research projects funded by the EPSRC, NATEP Program, RAEng, Innovate UK program, EU Horizon 2020 Programs, and the industry. Professor Cheng is a Chartered Engineer and a Fellow of the IMechE and IET, and the European editor for International Journal of Advanced Manufacturing Technology.



日時：7月25日(火) 10:30-11:30

場所：宇都宮大学 陽東キャンパス

10号館 1階 アカデミアホール

アカデミアホール



お問合せ：宇都宮大学 イノベーション支援センターイノベーション部門

電話：028-689-7006・028-689-6322

メールアドレス：cdi※cc.utsunomiya-u.ac.jp (※を@に変換してください)

