

The Midas Touch 點石成金

如何讓研發成為企業的金母雞

— 我在殼牌的經驗談

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此次研討會將廣泛地討論如何整合研發策略與市場需求，以追求企業經濟效益的極大化。主講人將以煉製業加熱爐的紅外線監測技術為例，分享他在這個主題上的個人經驗。相關的研究科目包括了定點測量儀器（如爐管熱電偶）和遙感技術（例如紅外線掃描）以及其他特殊精準探測工具。各項技術和儀器的優缺點以及在工地現場的實際測試結果都將逐一涵蓋。這也將是一項職場經驗分享活動，旨在幫助未來的工程師及科學家們在就業後，開創出屬於自己的職業生涯。



FRANK LIU, PH.D., P.E.

Director, Energy and Fired Equipment Technology



The seminar by Frank Liu will broadly cover the integration of R&D and market demands to maximize the economic returns to a company. Using IR monitoring of refinery process heaters as examples, Frank will share his personal experience on the topic. Key research elements including fix-position instrumentation (e.g., tube thermocouples) and remote sensing technology (e.g., IR scans) as well as specialty precision probes will be outlined. Pros & cons of different technology/tools will be mentioned along with real life test results from the field. This will be an experience sharing event aimed at helping emerging engineers/scientists to shape their future careers upon graduation.

Frank Liu pioneered the IR technology R&D and was primarily responsible for its service deployments at Shell downstream sites globally. He has been leading the integration efforts of online monitoring technologies and business applications within Shell for almost three decades. Frank was also heavily involved in Energy Utilization/Improvement projects within Shell. He has led many Energy Study teams at Shell North American sites and participated in the commercialization of Energy improvement services to 3rd party customers worldwide. While working in China, he introduced the energy/process integrated reviewing format that was adopted by a number of refining sites via joint energy renewal projects of Shell, SINOPEC and PetroChina. After retiring from Shell in 2010, Frank formed a consulting company called Furnace IR Inspection Services to perform heater IR monitoring and combustion system improvement projects for selected US clients. This company later was acquired by Becht and became the foundation of Becht's Fired Heater Service Division. Frank continues the role of aligning technology deployment and market needs in the energy arena within Becht. Frank has a Ph.D. degree in Heat Transfer & Mechanical Engineering and an M.S. degree in Fluid Mechanics; both from the University of Minnesota. His undergraduate study was in Mechanical Engineering at National Taiwan University.

Previously, Frank has worked in Shell group companies in several different business groups at various capacities for 30 years. His assignments within Shell businesses included:

- Global Business and Technology Manager, Fixed Asset Reliability & Remote Monitoring, Shell Projects & Technology
- Executive VP, Shell China (Asia)
- Sr. VP, Shell Global Solutions (U.S.)
- General Manager, Shell Gas & Power (U.S.)
- Corporate Energy Coordinator, Shell Oil Co. (U.S.)
- Various positions in R&D, process development & optimization within Shell Oil Company