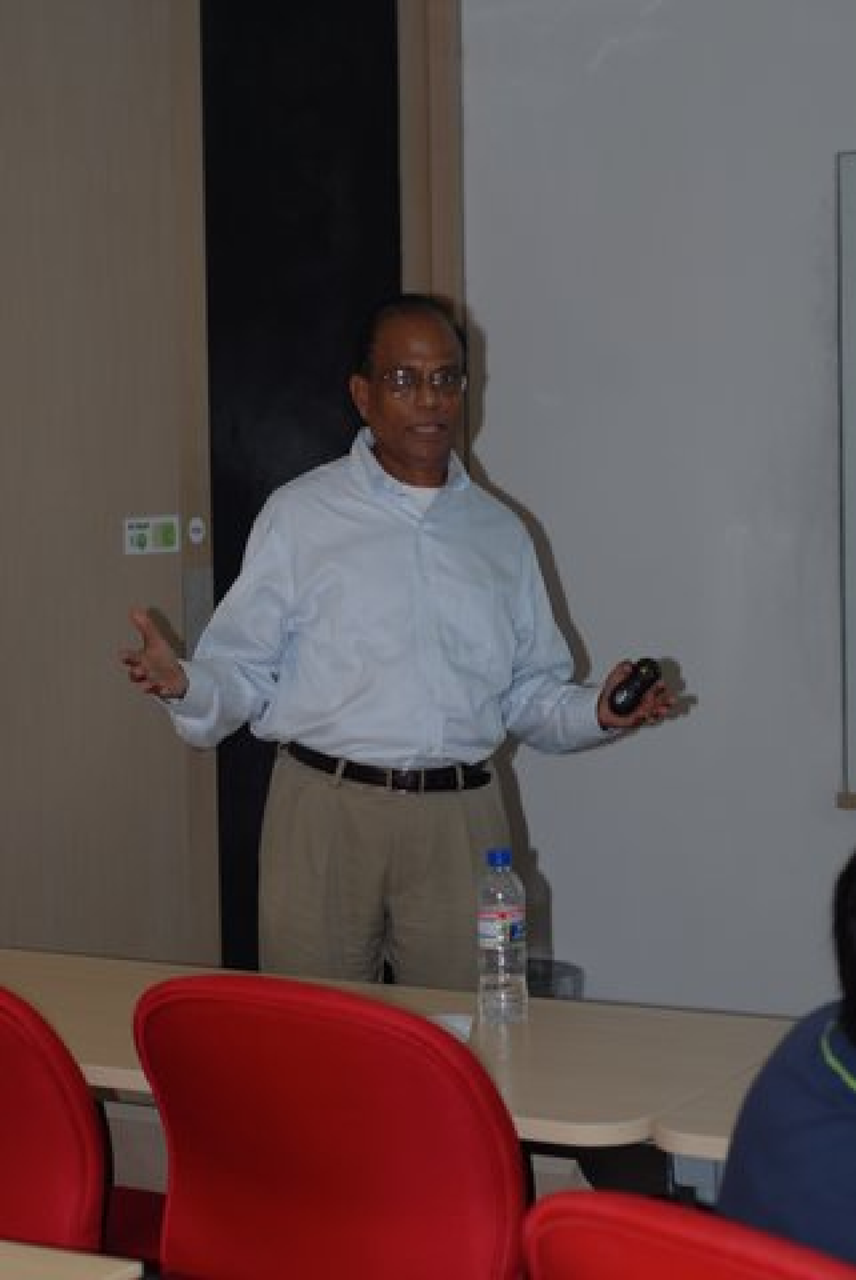

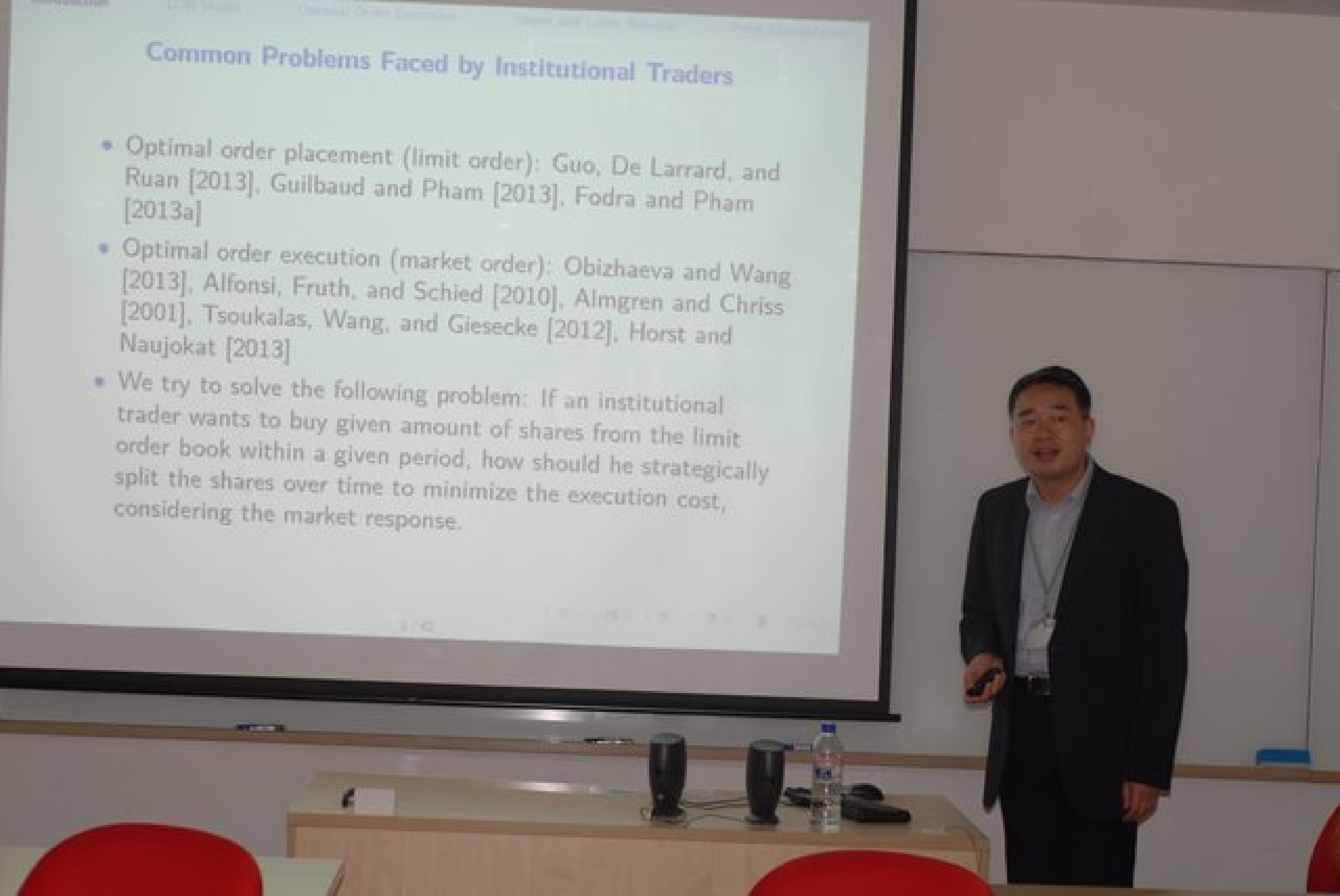
Common Problems Faced by Institutional Traders
Optimal order placement (limit order): Guo, De Larrard, and Ruan [2013], Guilbaud and Pham [2013], Fodra and Pham [2013a]
Optimal order execution (market order): Obizhaeva and Wang [2013], Alfonsi, Fruth, and Schied [2010], Almgren and Chriss [2001], Tsoukalas, Wang, and Giesecke [2012], Horst and Naujokat [2013]
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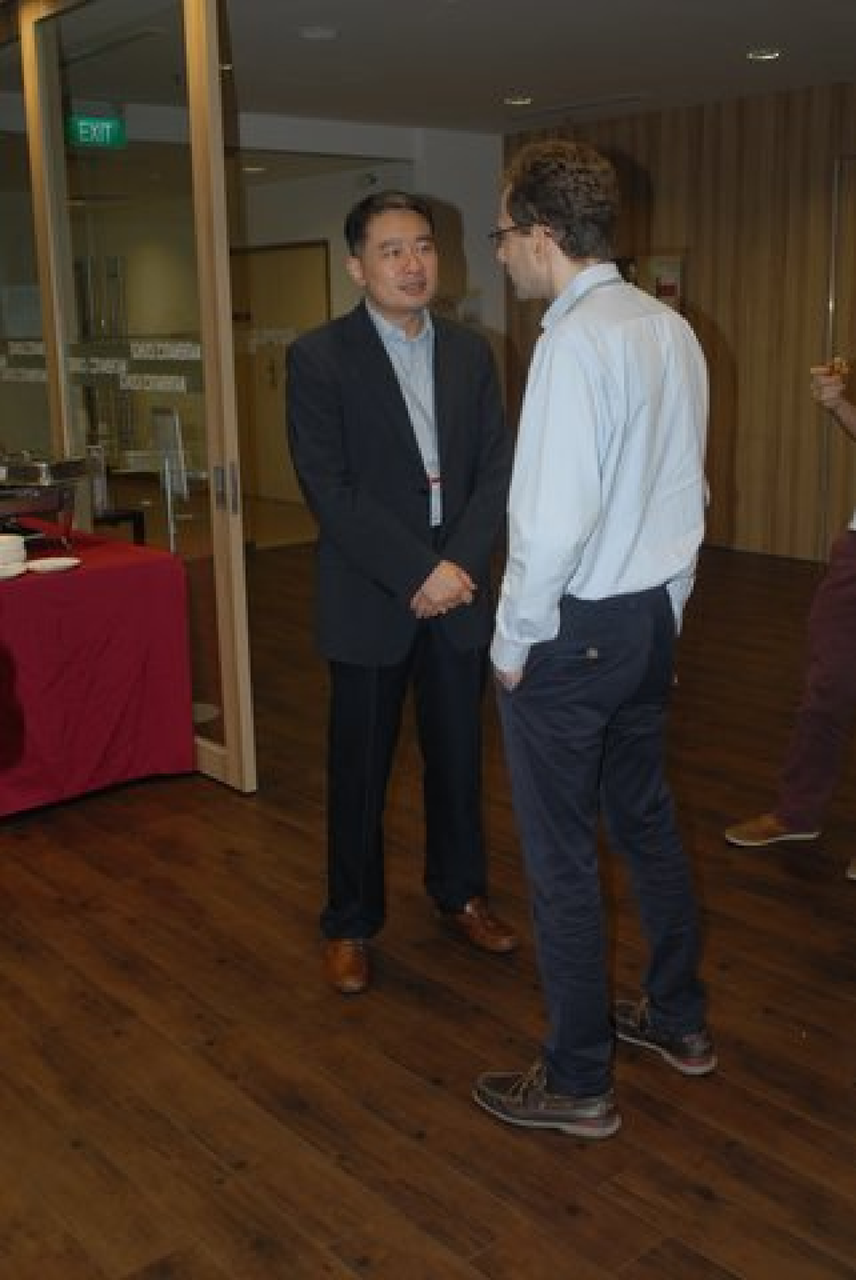
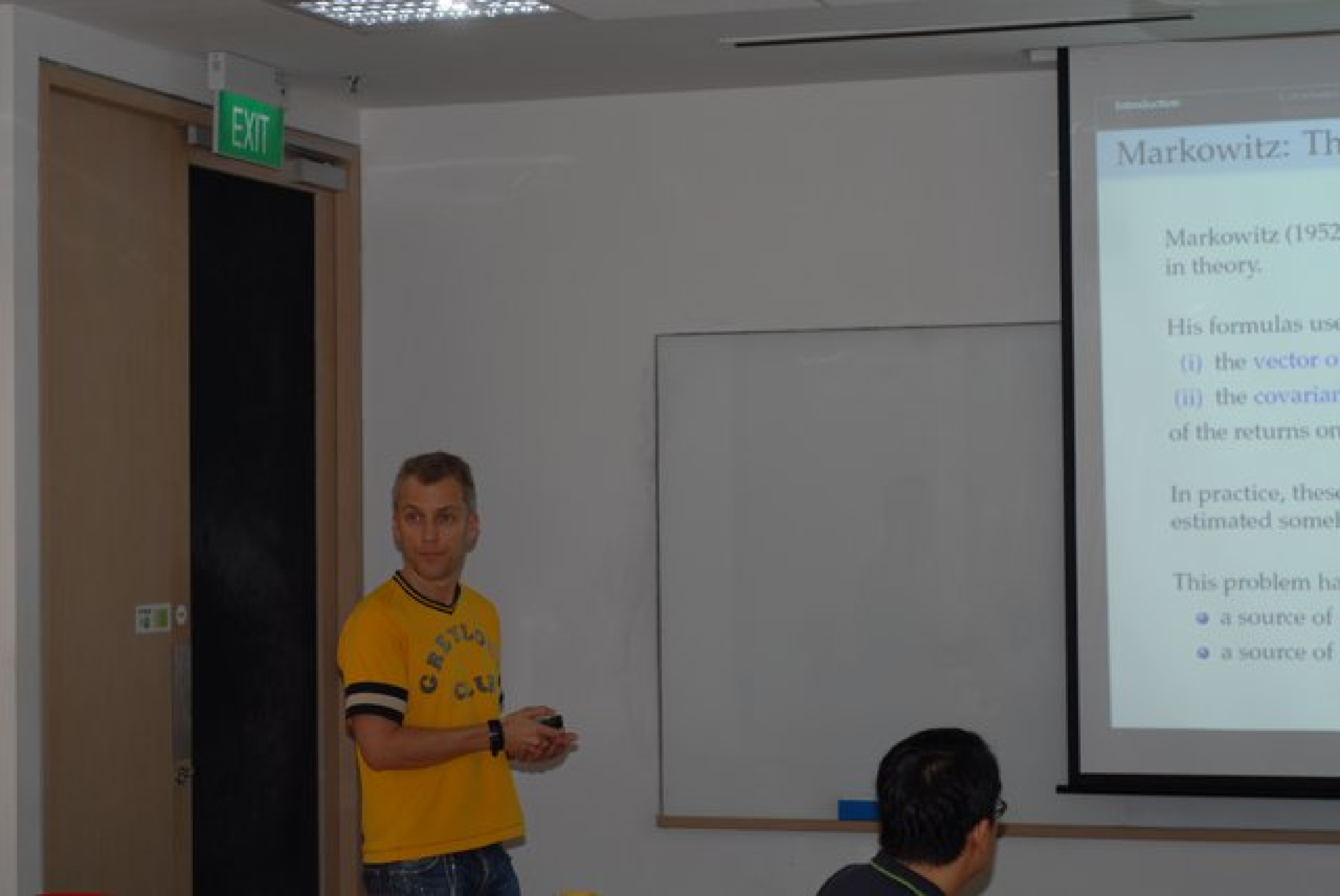
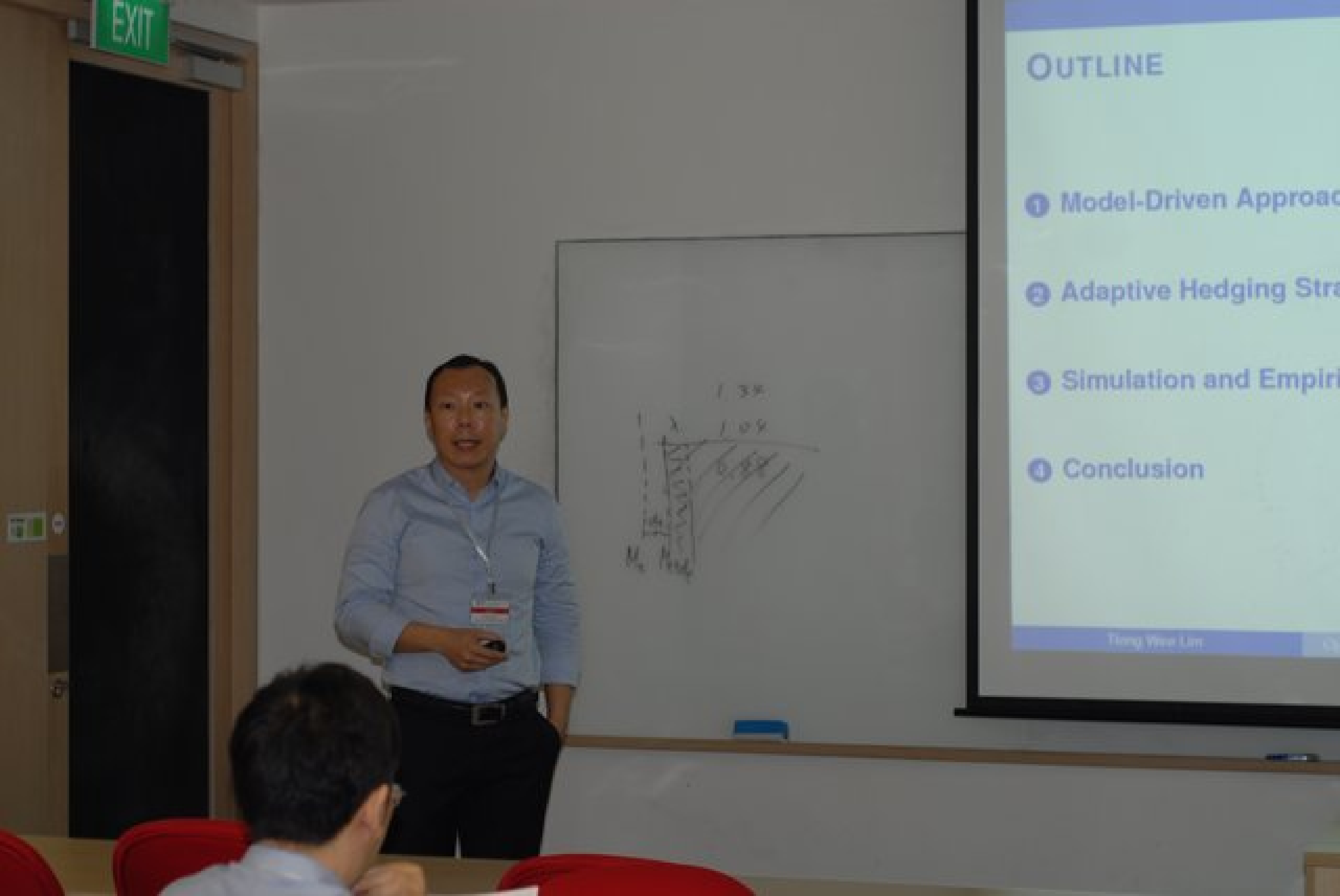

EXIT


EXIT
Markowitz: Th
Markowitz (1952
in theory.
His formulas use
(i) the vector o
(ii) the covarian
of the returns on
In practice, these
estimated somel
This problem ha
a source of
a source of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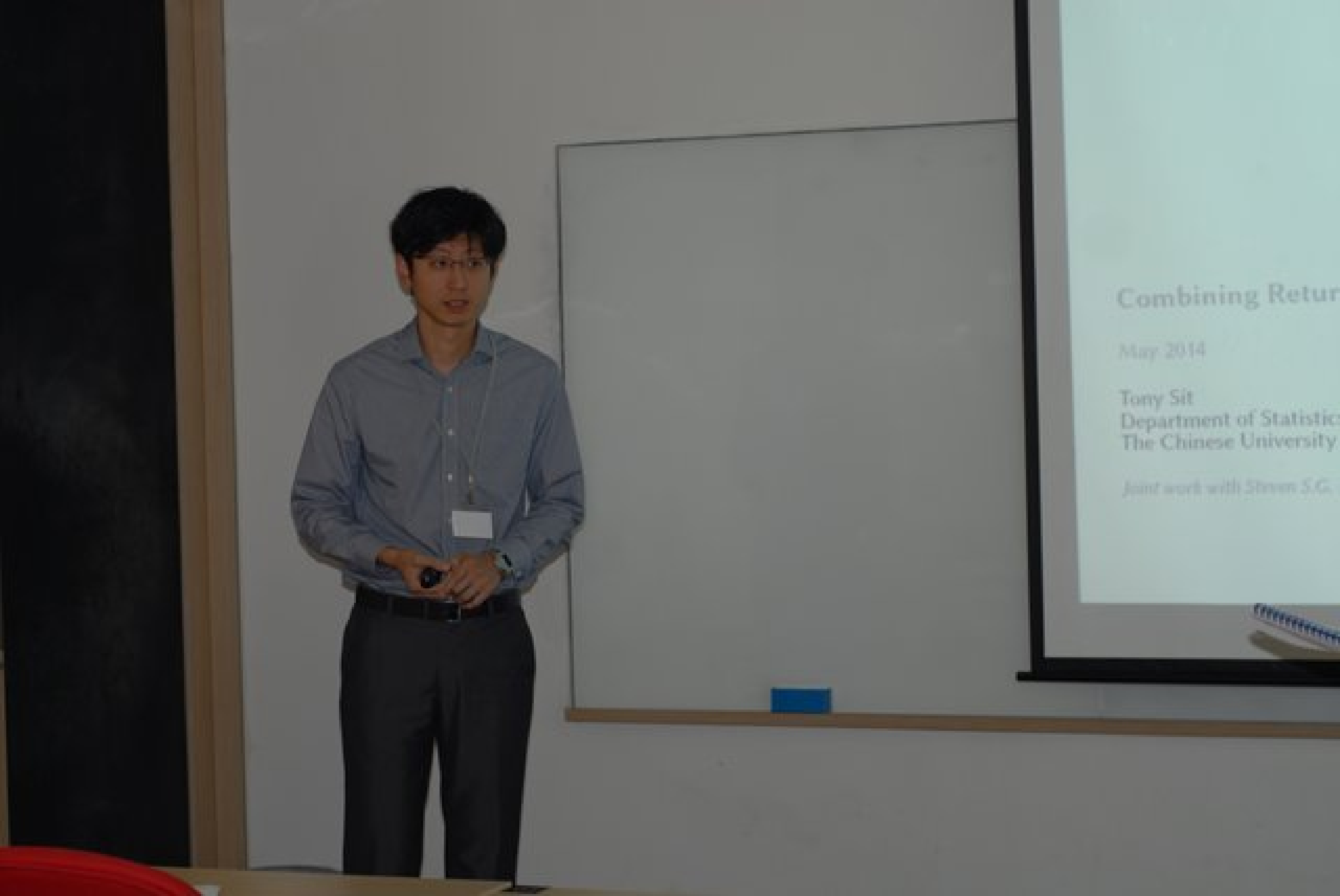
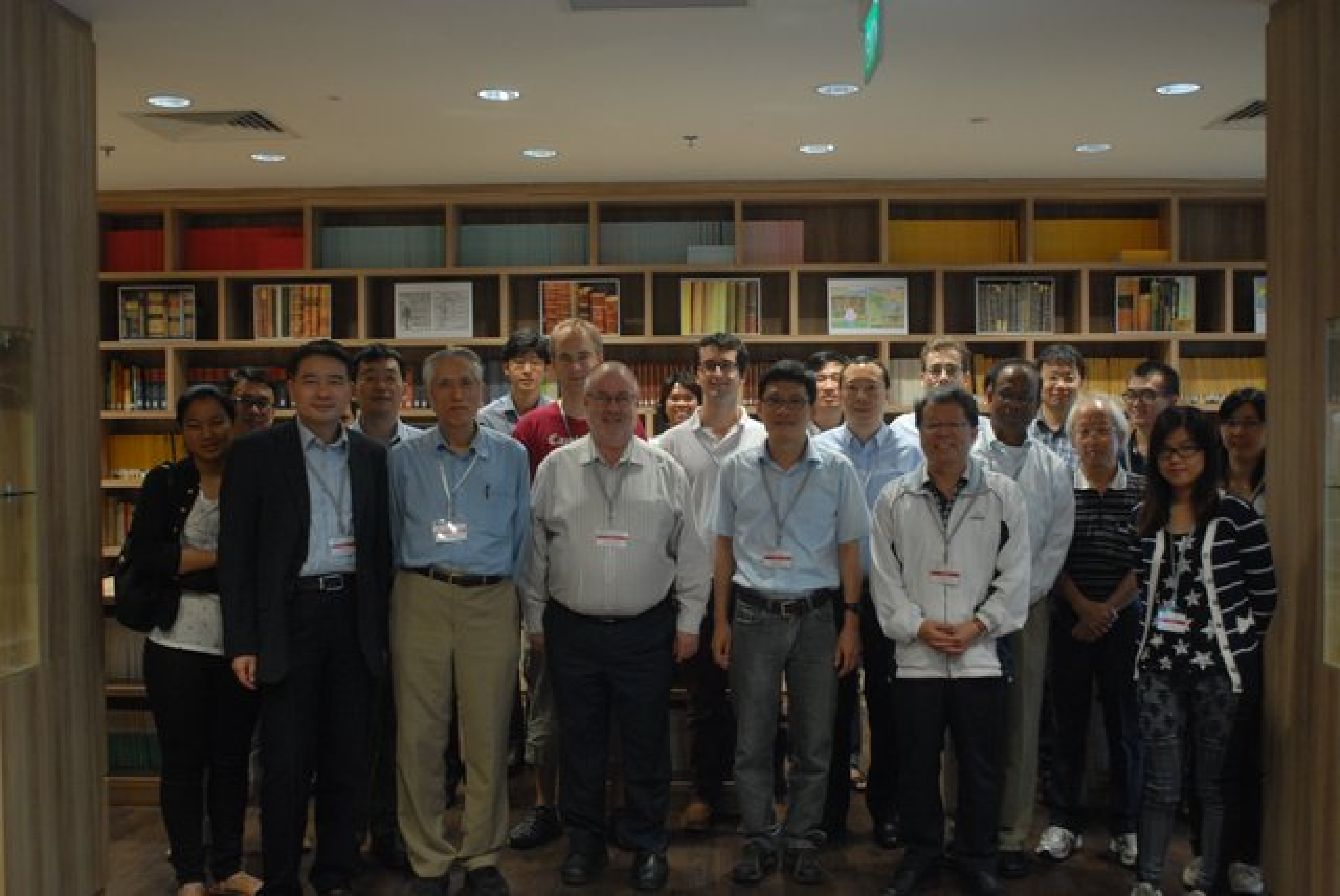
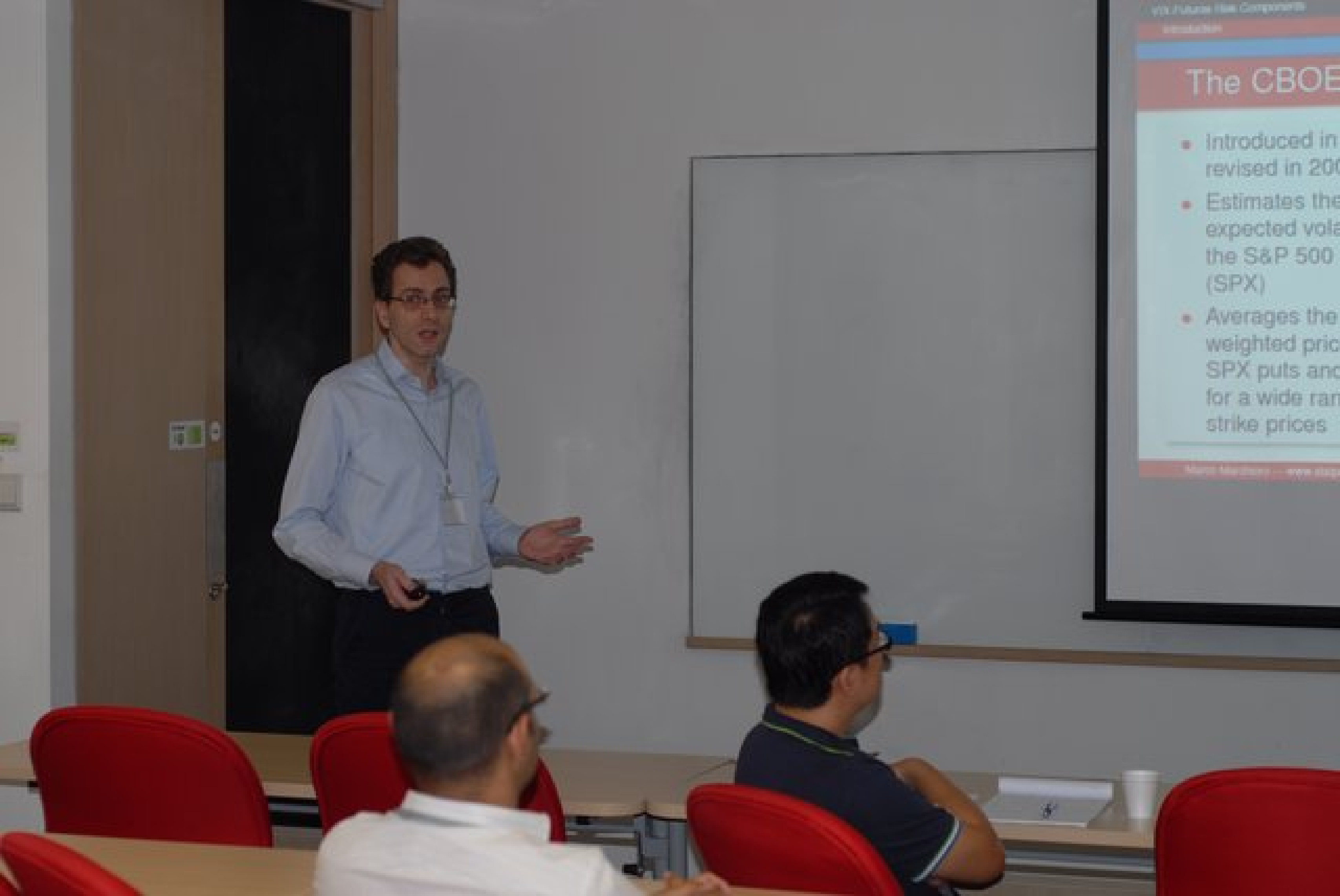
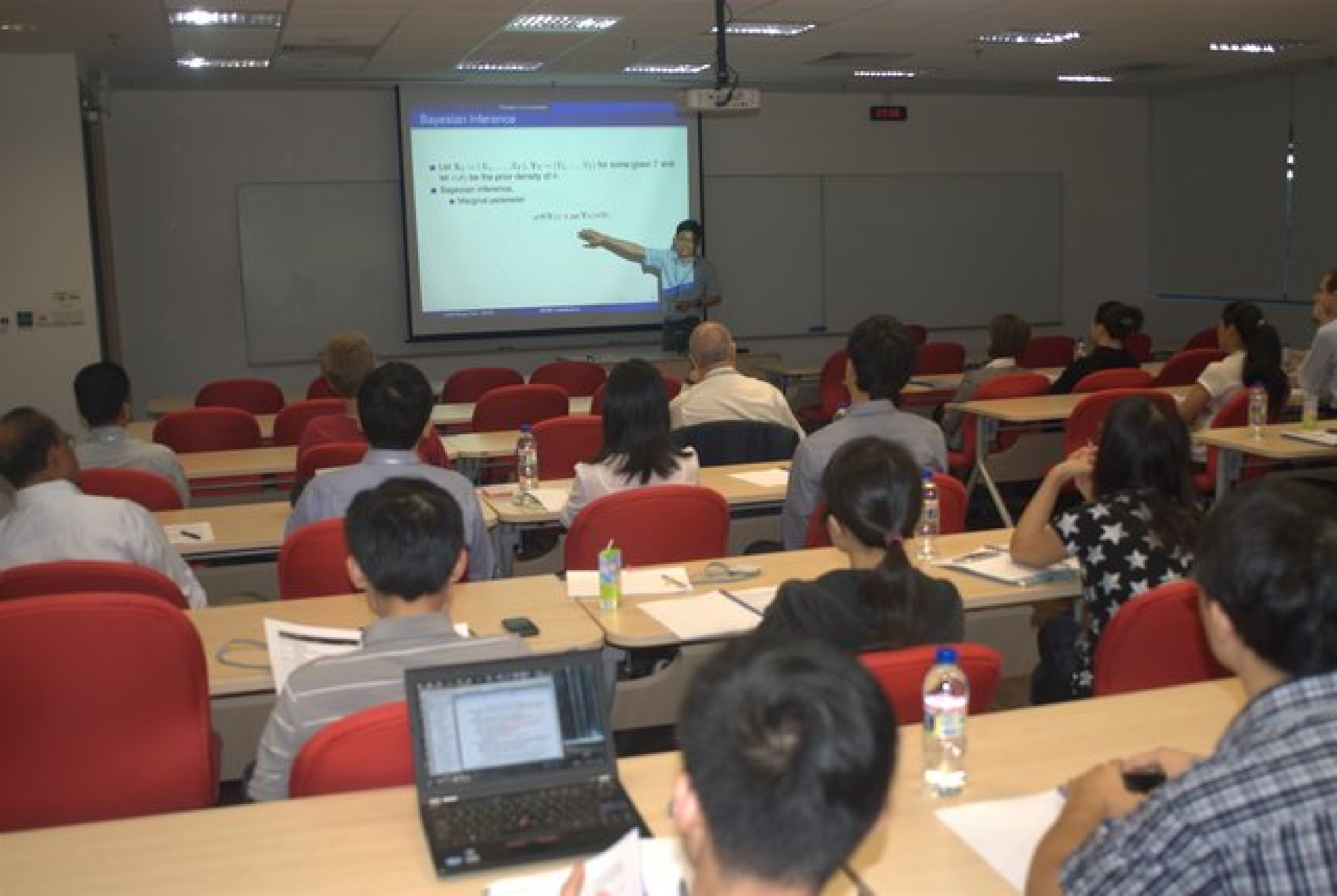
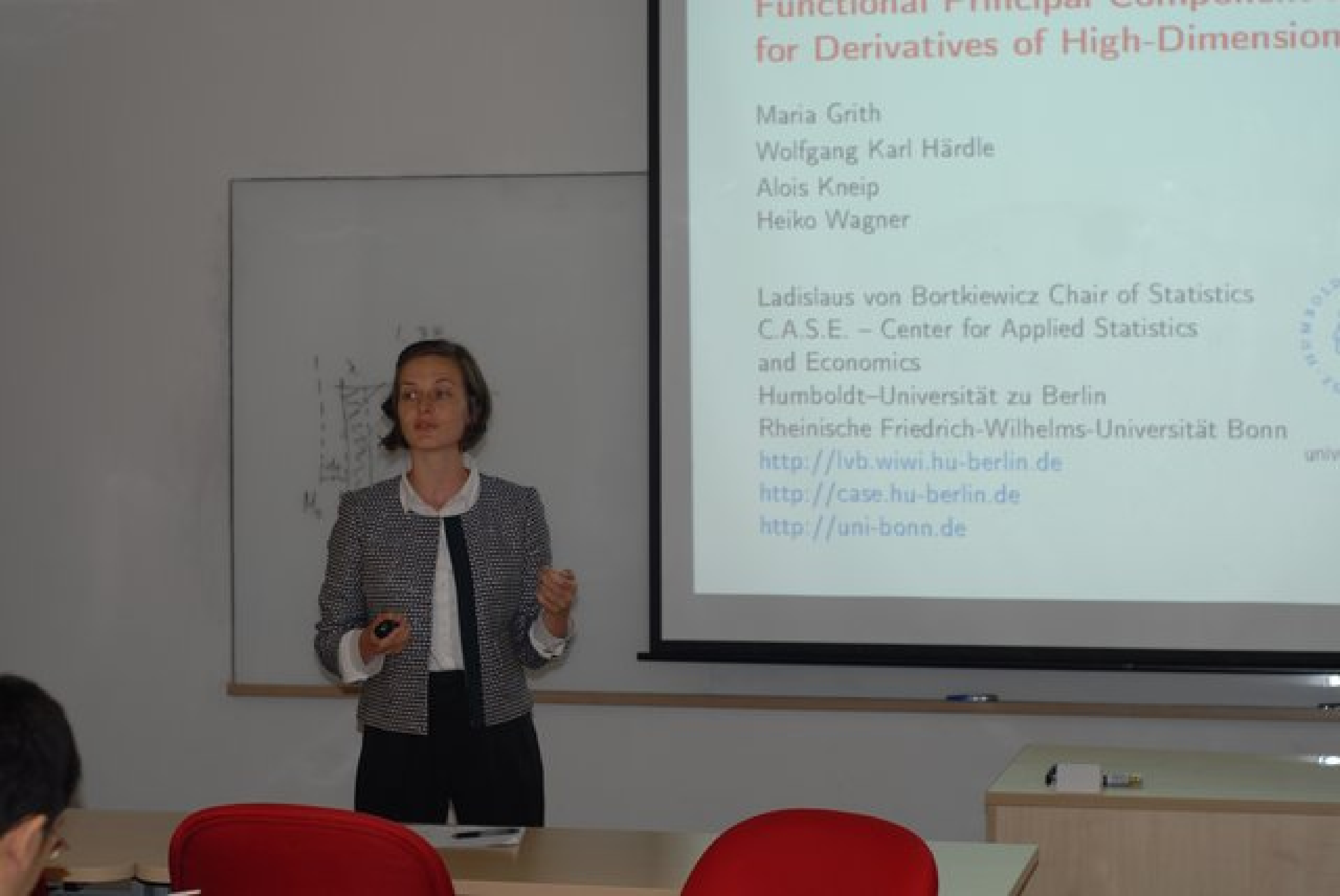
OUTLINE
1 Model-Driven Approac
2 Adaptive Hedging Stra
3 Simulation and Empiri
4 Conclusion

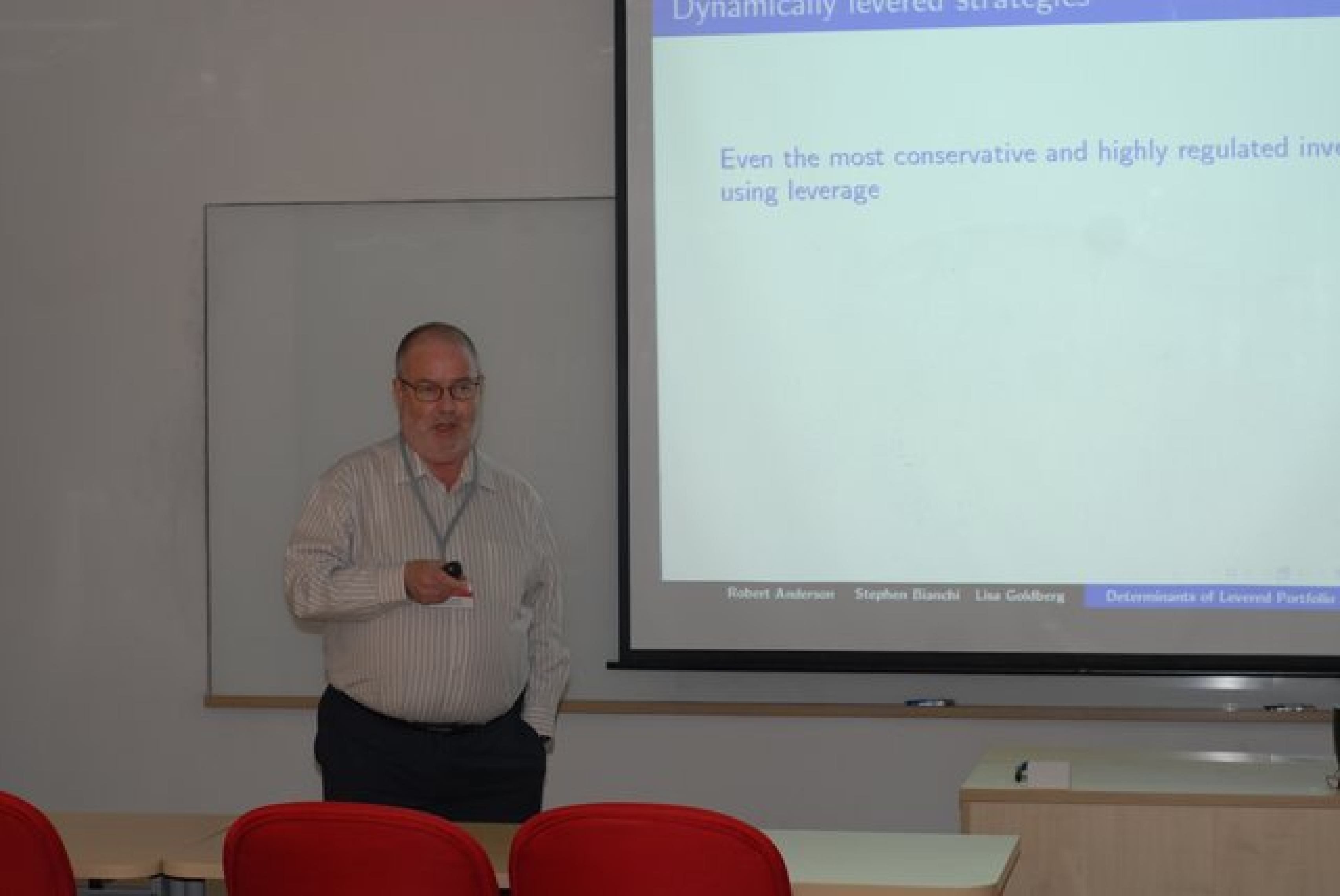

Combining
May 2014
Tony Sit
Department of
The Chinese

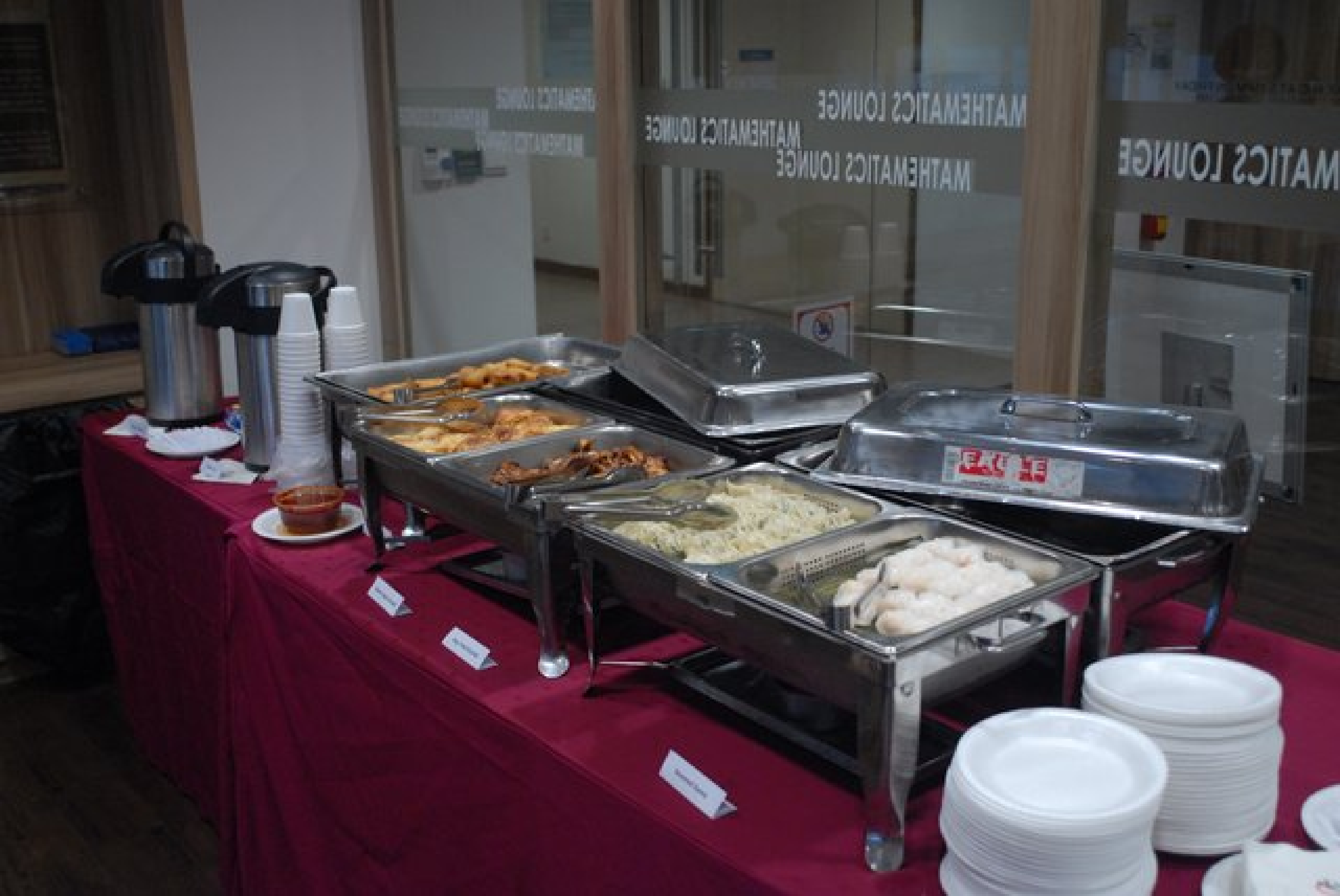


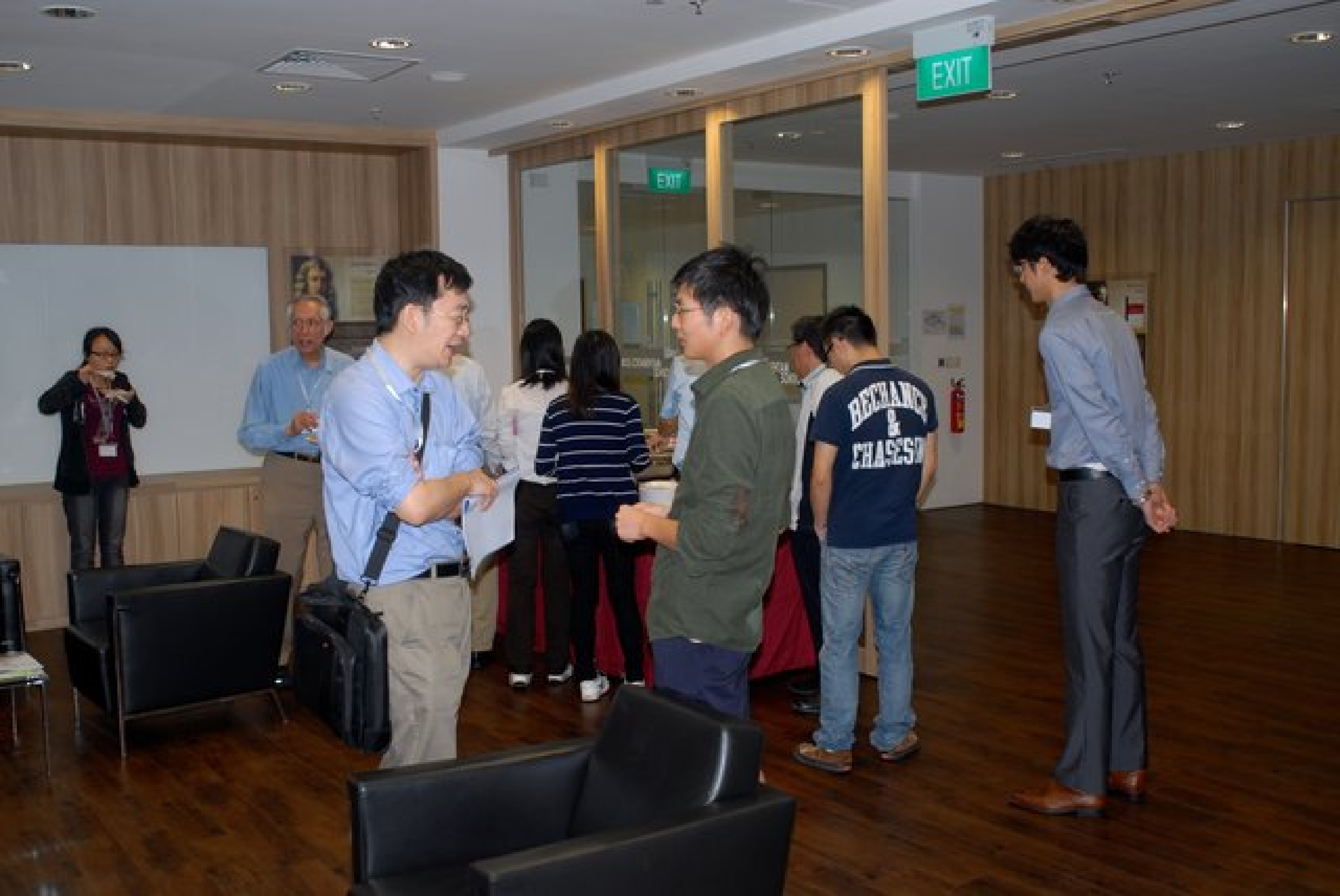

The CBOE
Introduced in
revised in
Estimates the
expected
the S&P 500
(SPX)
Averages the
weighted
SPX puts
for a wide
strike prices


Bayesian Inference


for Derivatives of High-Dimension
Maria Grith
Wolfgang Karl Härdle
Alois Kneip
Heiko Wagner
Ladislaus von Bortkiewicz Chair of Statistics
C.A.S.E. – Center for Applied Statistics
and Economics
Humboldt–Universität zu Berlin
Rheinische Friedrich-Wilhelms-Universität Bonn
http://lvb.wiwi.hu-berlin.de
http://case.hu-berlin.de
http://uni-bonn.de


Dynamically levered strategies
Even the most conservative and highly regulated
using leverage
Robert Anderson Stephen Bianchi Lisa Goldberg
Determinants of Levered Portfolio


MATHEMATICS LOUNGE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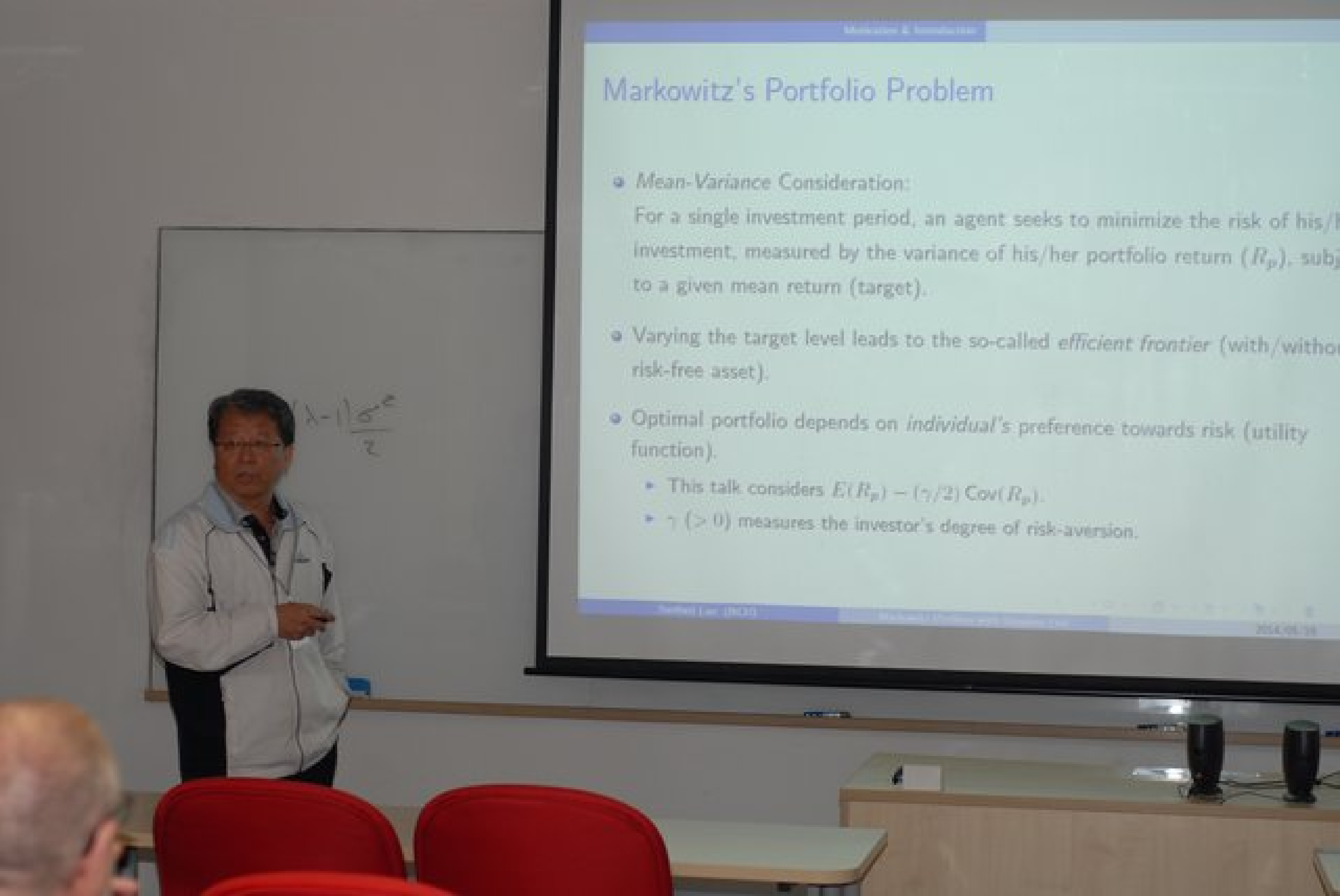
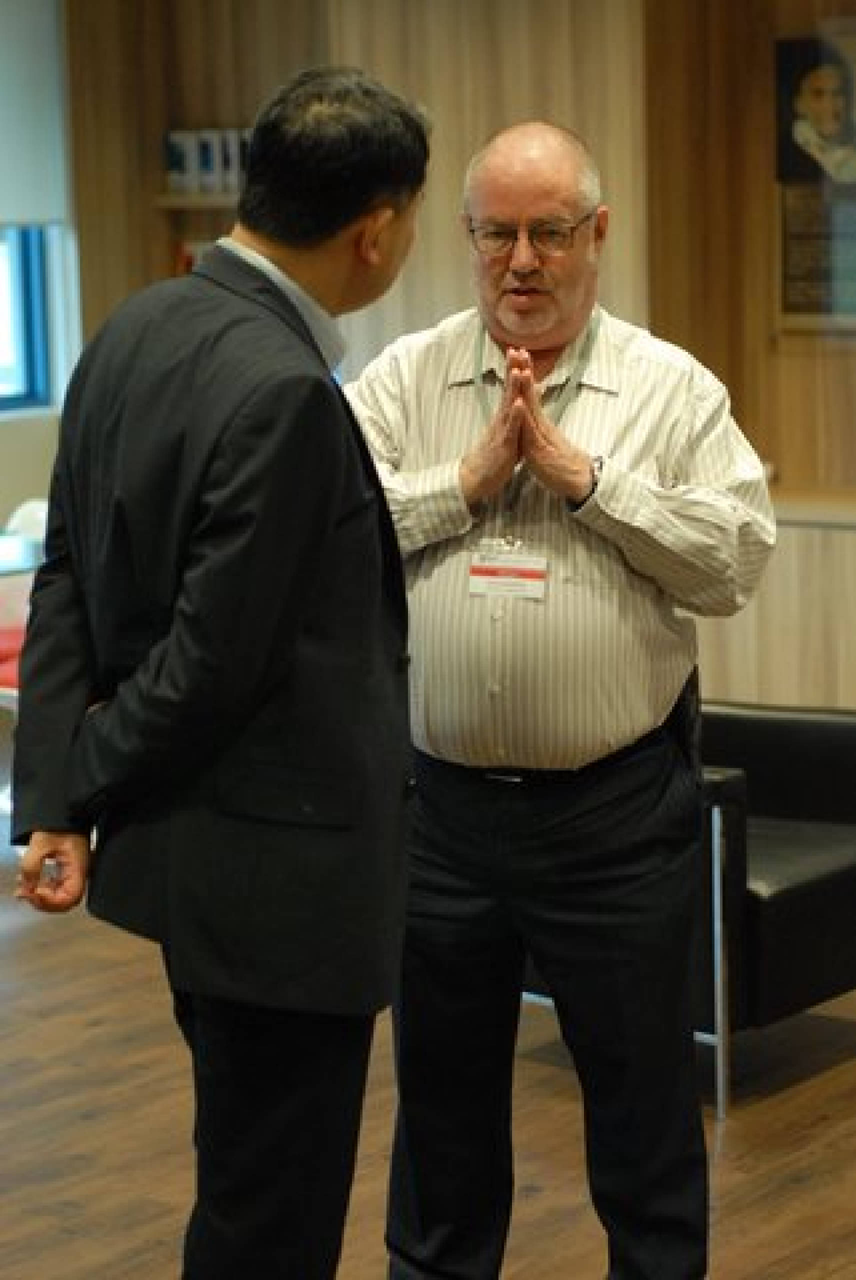
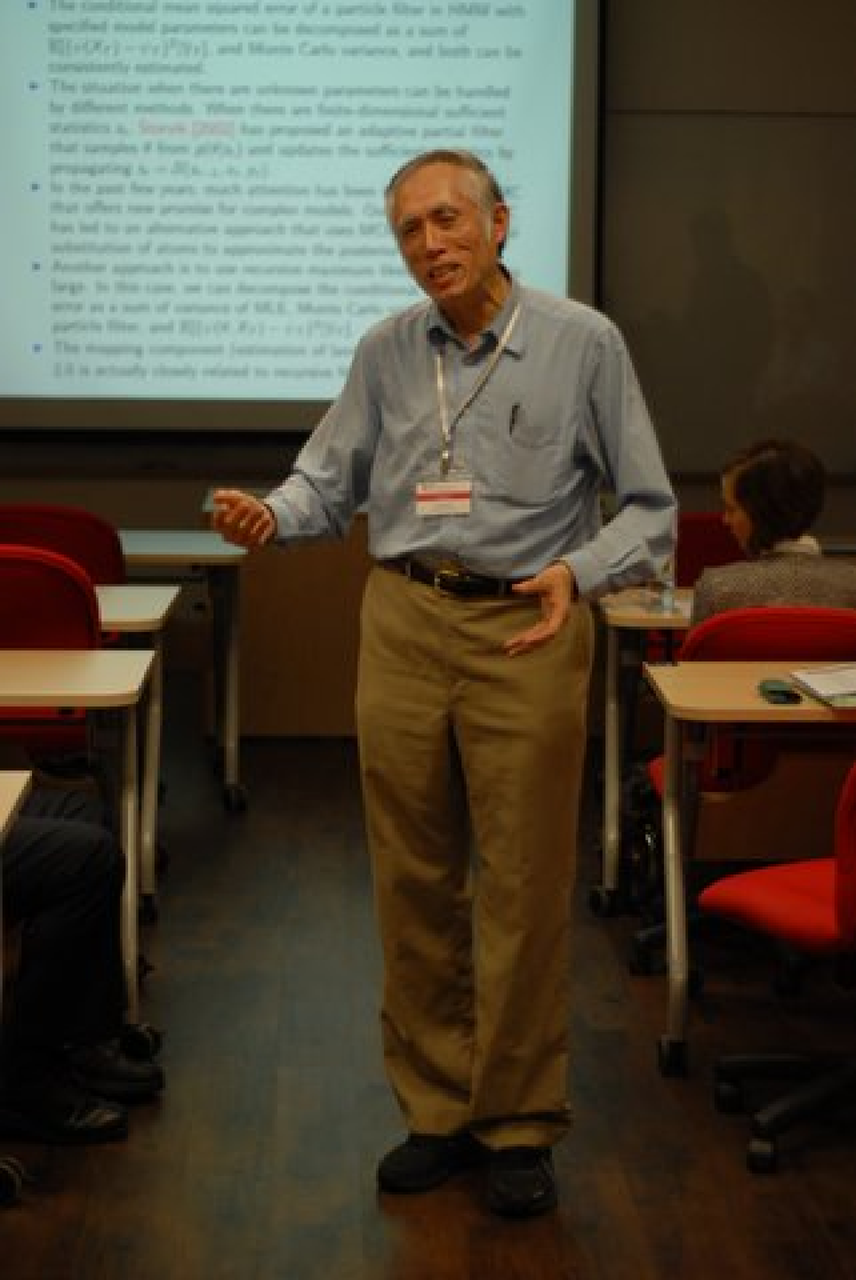
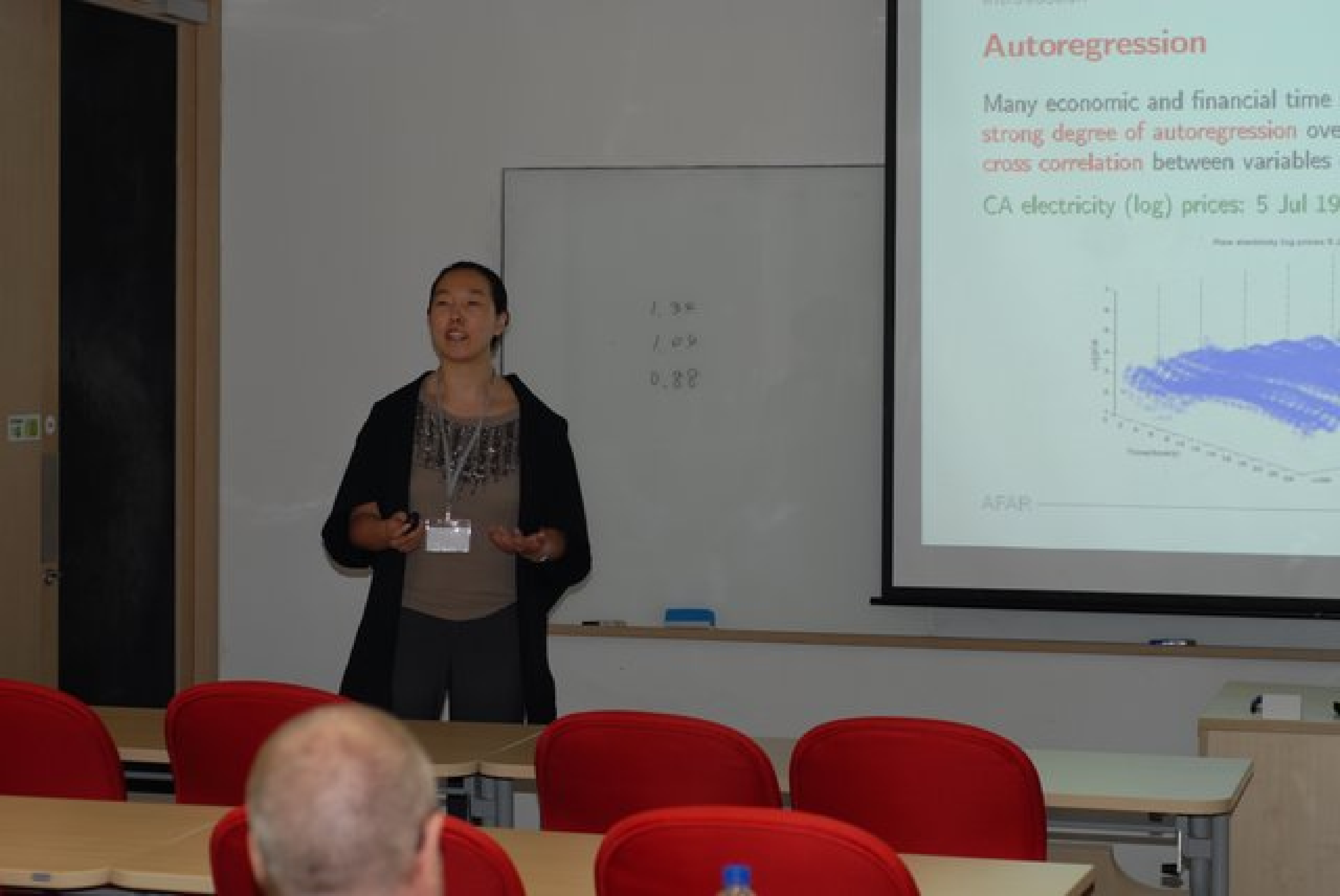
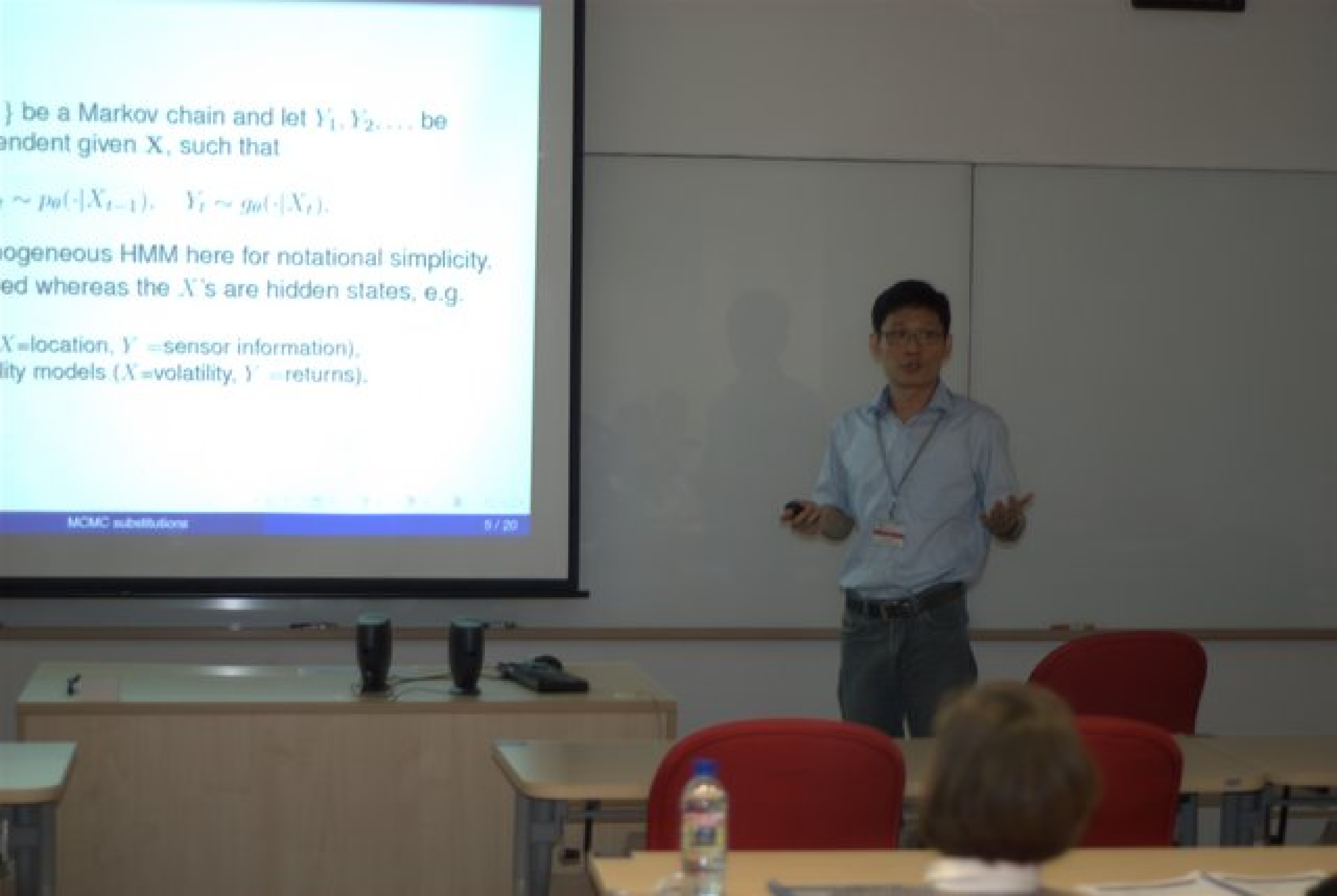
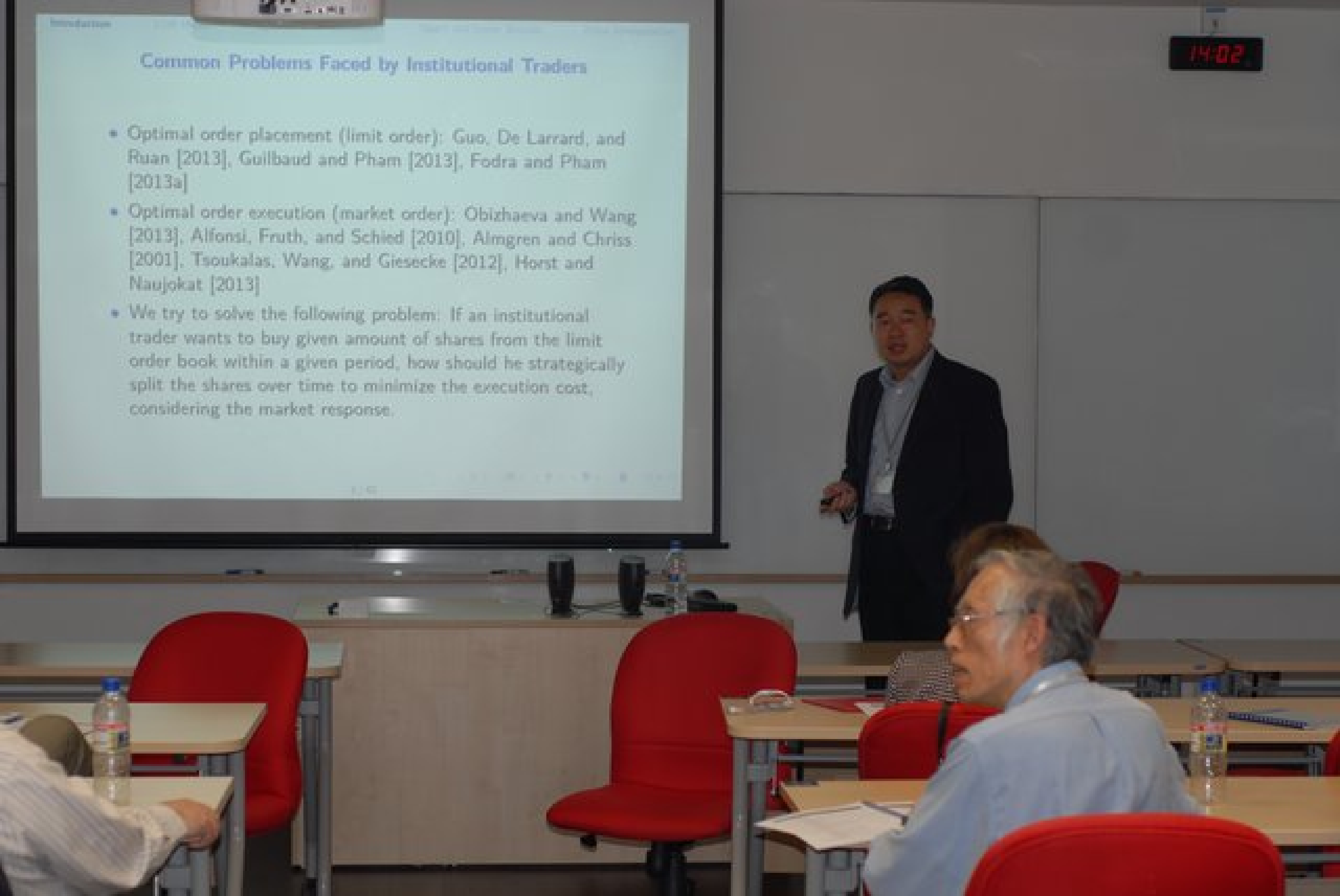

Markowitz's Portfolio Problem
Mean-Variance Consideration:
For a single investment period, an agent seeks to minimize the risk of his/
investment, measured by the variance of his/her portfolio return (R_p), sub
to a given mean return (target).
Varying the target level leads to the so-called efficient frontier (with/witho
risk-free asset).
Optimal portfolio depends on individual's preference towards risk (utility
function).
This talk considers $E(R_p) - (\gamma/2)$ Cov(R_p).
γ (> 0) measures the investor's degree of risk-aversion.






Autoregression
Many economic and financial time
strong degree of autoregression ove
cross correlation between variables
CA electricity (log) prices: 5 Jul 19
AFAR
0.88


} be a Markov chain and let $Y_1, Y_2, \dots$ be
endent given X, such that
$\sim p_\theta(\cdot|X_{t-1}), \quad Y_t \sim g_\theta(\cdot|X_t).$
ogeneous HMM here for notational simplicity.
ed whereas the X's are hidden states, e.g.
X=location, Y =sensor information),
lity models (X=volatility, Y =returns).
MCMC substitutions
5 / 20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• We try to solve the following problem: If an institutional trader wants to buy given amount of shares from the limit order book within a given period, how should he strategically split the shares over time to minimize the execution cost, considering the market response.
14:02