The Abdus Salam
International Centre for Theoretical Physics

United Nations
Educational, Scientific
and Cultural Organization

International Atomic
Energy Agency

ICTP PRIZE CEREMONY
MAY 16, 2006

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XIAOHUA ZHU

Citation for the award of the 2005 ICTP Prize

The 2005 ICTP Prize in honour of Armand Borel is awarded to Xiaohua Zhu, Professor at the School of Mathematical Sciences, Peking University.

Xiaohua Zhu has made fundamental contributions to complex differential geometry. He is best known for his work (jointly with G. Tian) on the uniqueness of "Kähler-Ricci solitons". This work introduced a new holomorphic invariant, and also a deep *a priori* estimate for solutions of certain complex Monge-Ampere equations. This was a major breakthrough in Kahler geometry. Zhu has also to his credit (jointly with X. Wang) an important existence theorem for Kahler-Ricci solitons, as well as impressive results on minimal submanifolds. More recently he has proved an important convergence theorem for the Kähler-Ricci flow, using the spectacular results of Perelman. At 37, he is one of the foremost young Chinese geometers, a mathematician who attacks and solves tough problems in geometric analysis. His excellent papers are published in front-line journals.

The 2005 ICTP Prize is named after Armand Borel, who was a professor at the School of Mathematics at the Institute for Advanced Study at Princeton and lectured at ICTP.

The 2005 ICTP Prize in honour of Armand Borel

will be awarded to

Xiaohua Zhu
School of Mathematical Sciences
Peking University

on

Tuesday, May 16, 2006
in the Main Lecture Hall of the ICTP Main Building
at 11:00 hrs.

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The presentation of the Prize by Professor K.R. Sreenivasan, Director of the Abdus Salam ICTP, will be followed by the 2005 ICTP Prize Lecture by Xiaohua Zhu on

Canonical metrics in Kähler geometry

Abstract: This will be a review of "canonical metrics" in Kähler geometry; examples are Kähler-Einstein metrics, Kähler-Ricci solitons, and extremal metrics. I will touch upon the following topics:

1) Calabi's conjecture.
2) Existence results for Kähler-Einstein metrics with c_1>0.
3) Geometric Invariant Theory related to the existence problem.
4) K-energy and K-stability on toric manifolds.
5) Kähler-Ricci flow and Kähler-Ricci solitons.

All are most cordially invited to attend.