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**Institute for Studies in  
Theoretical Physics and Mathematics  
Tehran, Iran**

## Opening Speech

It is a great honor for me to welcome you distinguished logicians, philosophers, and mathematicians to this conference. For us, this gathering is not an isolated event, but the beginning of a new enterprise: revival of our old tradition in logic by introducing modern investigation in the field to our scientific community.

In his magnum opus, Avicenna insists on logic as a descriptive science which has as its aim the understanding of the mystic phenomena of "thinking". Surely, he did not use mathematical models in his investigations. This is a gift of the twentieth century. But Avicenna's concept of a 'descriptive science' should differently be considered as seminal. Unfortunately, with the introduction of modern science in our country in this century, this area of knowledge did not receive the needed attention. It is one of our major projects in the Institute for Studies in Theoretical Physics and Mathematics to initiate systematic teaching and research in the field of mathematical logic and affiliated areas such as theoretical computer science, philosophical logic and cognitive research.

We hope this Conference will encourage our scientists and students to start work or continue their research in these fields. We also hope that it will be an opportunity for presenting some of the latest results in the field.

This is our hope and ideal, and I am sure your presence, honorable guests, will contribute to the objective.

M.J.A. Larijani, President  
Institute for Studies in Theoretical Physics and Mathematics

# Preface

The present volume is the proceedings of the lectures delivered in English language at the First Congress of Logic (5–7 May 1990), which was held in Tehran at Shahid Beheshti University. The Congress was cosponsored by the Institute for Studies in Theoretical Physics and Mathematics and Academy of Philosophy affiliated to the Institute for Cultural Studies and Research. The language of the Congress was both English and Persian.

The articles in this volume fall into three categories:

1. Philosophical-Logical,
2. Logical-Mathematical,
3. Mathematical-Computational.

The interested reader must be aware of the fact that the absence of formalism in most of the articles by no means implies any sacrifice in technical precision. In fact, Professors Follesdal, Lopez-Escobar and Enayat were kind enough to deliver in separate sessions talks for general audience which are being published in Persian language.

Professors Hart and Higginbotham who were unable to attend, were kind enough to send their papers for discussion and publication.

We would like to use this opportunity and thank our guest speakers who accepted our invitation and in some cases put up with a very tight and hectic schedule as a result of unforeseen changes in flight arrangements.

Finally, we wish to thank specially Professor Sheikh, the Head of the Faculty of Letters of Shahid Beheshti University, who kindly made available to us all the facilities needed for holding the Congress at that university.

## Acknowledgement

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