

## Introduction to Session 2

### Applied Biological Research I

TADASHI MATSUNAGA<sup>1</sup> AND ELIAS GREENBAUM<sup>2</sup>

<sup>1</sup>*Tokyo University of Agriculture and Technology;*  
*and* <sup>2</sup>*Oak Ridge National Laboratory*

Applied biological research covers quite a broad area. The session is divided into three topics including biological solubilization of coal, xylose and cellulose utilization from biomass, and biological production of new materials such as inorganic ultrafine particles. From a biotechnological point of view, recombinant DNA technology was mainly dealt with in this session.

J. K. Polman et al. reported depolymerization of alkali-soluble coals by the wood-degrading fungus *Phanerochaete chrysosporium*. Overexpression of xylose reductase gene in *Saccharomyces cerevisiae* was described by N. Y. Ho et al. T. W. Jeffries and coworkers also described a high-frequency transformation system for the xylose fermenting yeast *Pichia stipitis*.

Xylanolytic, as well as cellulolytic, enzymes were isolated from anaerobic fungi by M. J. Teunissen et al. N. K. Wang et al. analyzed mRNA-encoding cellulose S<sub>3</sub> subunit from *Clostridium thermocellum*, and H. Takano et al. reported calcite ultrafine particles production by a biosolar reactor system. C. Nakamura and coworkers produced magnetite ultrafine particles by bacteria and also described isolation of the genes responsible for magnetite formation in magnetic bacteria.