

CONTENTS

Foreword-----	(i)
<i>M. Akazaki</i>	
Message of Welcome-----	(ii)
<i>T. Eguchi</i>	
Speech of Welcome-----	(iii)
<i>T. Uchida</i>	
 Session I <u>Background and General Remarks of Laser-Aided</u> <u>Plasma Diagnostics</u>	
The overview on Japanese Fusion Programme (KIS-LAPD-83/1a-1)-----	1
<i>C. Oyama</i>	
Roles and Potentials of Laser-Aided Plasma Diagnostics in the Field of Fusion Research (KIS-LAPD-83/1a-2)-----	3
<i>H. -J. Kunze</i>	
Laser-Aided Plasma Diagnostic Research at Kyushu University (KIS-LAPD-83/1a-3)-----	9
<i>K. Muraoka and Laser-aided plasma diagnostics group</i>	
 Session II <u>Laser-Aided Plasma Diagnostics as Applied to</u> <u>Large Plasma-Machines</u>	
Laser-Aided Plasma Diagnostics at Culham (KIS-LAPD-83/1a-4)-----	15
<i>D. E. Evans</i>	
Laser-Aided Plasma Diagnostics for JIPP T-II Project and New Diagnostic Developments (KIS-LAPD-83/1a-5)-----	21
<i>J. Fujita</i>	
Laser-Aided Plasma Diagnostics on PDX, PLT, TFTR, and TMX (KIS-LAPD-83/1a-6)-----	27
<i>A. W. DeSilva</i>	
Laser-Aided Plasma Diagnostics on JFT-2M and JT-60 (KIS-LAPD-83/1p-1)-----	37
<i>T. Matoba, T. Yamauchi, Y. Uesugi and A. Nagashima</i>	
Laser-Aided Plasma Diagnostics on Heliotron E (KIS-LAPD-83/1p-2)-----	45
<i>K. Kondo, S. Sudo, H. Zushi, T. Mizuuchi, T. Mutoh, H. Kaneko, K. Yaguchi, A. Iiyoshi, K. Uo, T. Oda, M. Hamamoto and T. Ohgo</i>	
Laser-Aided Plasma diagnostics on Gamma 10 (KIS-LAPD-83/1p-3)-----	53
<i>A. Mase and Plasma Group</i>	

Laser-aided Plasma Diagnostics on ASDEX and TEXTOR (KIS-LAPD-83/1p-4)-----	57
<i>H. Röhr, K. -H. Steuer and H. Soltwisch</i>	
Laser-Aided Plasma Diagnostics on NBT (KIS-LAPD-83/1p-5)-----	67
<i>H. Iguchi</i>	
 <u>Session III Plasma-Wave Measurements by the Far-Forward</u> <u>Scattering (Fraunhofer Diffraction) Method</u>	
Ultra Far Forward Scattering for Measuring Long Wavelength Density Fluctuations in TOSCA Tokamak (KIS-LAPD-83/1p-6)-----	71
<i>D. E. Evans and E. J. Doyle</i>	
Fraunhofer-Diffraction Method for Plasma-Wave Measurements Applied at Microwave and Infrared-Laser Wavelengths (KIS-LAPD-83/1p-7)-----	77
<i>Y. Sonoda, S. Ochi, Y. Gosho, K. Muraoka and M. Akazaki</i>	
Single Shot Measurement of Broad Frequency and Wavelength Fluctuation Spectra in a Turbulent Plasma by Far Forward Scattering at 10μ (KIS-LAPD-83/1p-8)-----	83
<i>M. von Hellermann</i>	
Measurements of Wavenumber Spectra of Turbulence in a Theta Pinch (KIS-LAPD-83/1p-9)-----	89
<i>A. W. DeSilva and S. H. Gold</i>	
 <u>Session IV Laser-Aided Plasma Diagnostics Using Submillimetre</u> <u>and Infrared Lasers</u>	
Laser Scattering Systems for Measuring Ion Temperature in Tokamaks (KIS-LAPD-83/2a-1)-----	97
<i>D. E. Evans</i>	
Optically-Pumped Submillimeter Wave Lasers for Plasma Diagnostics (KIS-LAPD-83/2a-2)-----	103
<i>M. Yamanaka and Y. Tsunawaki</i>	
Submillimetre Laser Development for Tokamak Ion-Temperature Measurement by Optical Pumping from Injection-Locked TEA CO ₂ Laser (KIS-LAPD-83/2a-3)-----	109
<i>T. Okada, F. Nishimura, S. Inoue, K. Muraoka and M. Akazaki</i>	
Measurement of Ion-Temperature by Observing Scattering from Driven Plasma Waves (KIS-LAPD-83/2a-4)-----	115
<i>T. Tsukishima and M. Nagatsu</i>	

Laser Scattering Measurements of Thermal Fluctuation Spectra in Not-So Strongly Coupled Plasmas (KIS-LAPD-83/2a-5)-----	125
<i>A. W. DeSilva and A. N. Mostovych</i>	
Application of Nd:YAG- and Nd:Glass-Laser Systems to Scattering Diagnostics (KIS-LAPD-83/2a-6)-----	133
<i>R. Boes, H.F. Döbele and H. Schomburg</i>	
Study of Microturbulence by Far-Infrared Laser Scattering (KIS-LAPD-83/2a-7)-----	141
<i>M. Mase</i>	
 <u>Session V Laser-Aided Plasma Diagnostics by Laser- Fluorescence Spectroscopy</u>	
Electric Field Measurements by Laser Fluorescence (KIS-LAPD-83/2p-1)-----	147
<i>H. -J. Kunze and U. Rebhan</i>	
Some Aspects of Laser-Induced-Fluorescence Spectroscopy on Plasmas (KIS-LAPD-83/2p-2)-----	153
<i>T. Fujimoto, Y. Uetani and A. Hirabayashi</i>	
Measurements of Quasistatic Electric Field in Plasmas by Laser Fluorescence Techniques (KIS-LAPD-83/2p-3)-----	171
<i>T. Oda, T. Usui, M. Sakaguti and K. Kawasaki</i>	
Determination of Plasma Parameters by Laser-Induced Fluorescence Combined with Neutral Beams (KIS-LAPD-83/2p-4)-----	177
<i>K. Kadota</i>	
Laser Fluorescence Studies of Impurity-Behaviours in High Temperature Plasmas (KIS-LAPD-83/2p-5)-----	183
<i>M. Hamanoto, K. Muraoka, Y. Ueda, Y. Matsuda, K. Watanabe, K. Uchino, T. Okada, M. Akazaki and M. Maeda</i>	
Laser-Induced Fluorescence for Titanium Impurity Studies at the ASDEX Divertor Plate (KIS-LAPD-83/2p-6)-----	189
<i>S. Goto, B. Schweer, E. Hintz and K. H. Steuer</i>	
Laser Fluorescence Spectroscopy of Atomic Beams Produced by Laser-Induced Ablation (KIS-LAPD-83/2p-7)-----	197
<i>H. -J. Kunze, V. Henč-Bartolič, P. Leismann and U. Rebhan</i>	
Developmant of VUV Laser Fluorescence System for Hydrogen Recycling and Light-Impurity Behaviours in High Temperature Plsmas (KIS-LAPD-83/2p-8)-----	203
<i>T. Kajiwara, H. Ono, T. Okada, K. Muraoka, M. Akazaki and M. Maeda</i>	
Aspects of Laser Fluorescence Spectroscopy using VUV-Radiation Produced by Stimulated Raman Scattering in H ₂ (KIS-LAPD-83/2p-9)-----	209
<i>H. F. Döbele, B. Rückle and H. Schomburg</i>	

Rapid-Frequency-Scan Dye Laser for Measurement of Velocity-Distribution- Function of Impurities in Plasmas with Fluorescence Spectroscopy (KIS-LAPD-83/2p-10)-----	215
--	-----

*C. Honda, M. Maeda, H. Yamamoto, T. Yamada, Y. Miyazoe, K. Nishimura,
K. Muraoka and M. Akazaki*

Session VI Laser-Aided Plasma Diagnostics Applied to Low-
Temperature High-Density Plasmas

Rayleigh Contribution to Laser Scattering on High-Density, Low- Temperature Plasmas (KIS-LAPD-83/3a-1)-----	221
--	-----

H. -J. Kunze and S. Maurmann

Near-Resonant Scattering Method for Measurement of Alkali Seed-Density in MHD Power-Generation Plasmas (KIS-LAPD-83/3a-2)-----	227
---	-----

Y. Watanabe, T. Ikegami, T. Nishiyama and M. Akazaki

Thomson-Scattering Diagnostics of Laser Light for Impulse-Breakdown and DC-Discharge Plasmas in an Atmospheric Air (KIS-LAPD-83/3a-3)-----	233
--	-----

K. Uchino, Y. Itsumi, K. Muraoka and M. Akazaki