

ISAS Report SP No. 16 The First Open Competition for the MUSES-C
Asteroidal Sample Preliminary Examination Team

CONTENTS

Preface

Ikuo KUSHIRO Akira FUJIWARA, and Hajime YANO

Contents

The MUSES-C mission profile and the first MASPET competition procedure summary	1
Hajime YANO, Michael E. ZOLENSKY, Akira FUJIWARA and Ikuo KUSHIRO	
Non-destructive analysis of unknown samples named 1G and 2G by using nuclear analytical methods	9
Mitsuru EBIHARA and Yasuji OURA	
Sm and Gd isotopic measurements in test samples for the MUSES-C mission	19
Hiroshi HIDAKA and Shigekazu YONEDA	
Characterization of carbonaceous matter	25
Tatsushi MURAE and Eiji IKEDA	
Report on noble gas isotopic compositions of the 1E and 2E samples: An example of noble gas analyses for small sample sizes	37
Keisuke NAGAO, Yayoi N. MIURA, Ryuji OKAZAKI, and Takahito OSAWA	
Comprehensive geochemical analyses of small amounts (< 100 mg) of extraterrestrial samples for the analytical competition related to the sample return mission MUSES-C	49
Eizo NAKAMURA, Akio MAKISHIMA, Takuya MORIGUTI, Katsura KOBAYASHI, Chie SAKAGUCHI, Tetsuya YOKOYAMA, Ryoji TANAKA, Takeshi KURITANI, and Hiroyuki TAKEI	
Mineralogy of 100- μ g Test Samples for Muses-C Mission	103
Tomoki NAKAMURA and Takaaki NOGUCHI	
Analyses of organic compounds and carbon isotope ratio in the MUSES-C samples	121
Akira SHIMOYAMA, Hiroshi NARAOKA, Hajime MITA, and Masayoshi KOMIYA	

Non-destructive three-dimensional analysis of MUSES-C samples by micro X-ray CT method using synchrotron radiation Akira TSUCHIYAMA, Tsukasa NAKANO, and Kentaro UESUGI	135
Author Index	159