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Titolo	Plasma research at the limit : from the international space station to applications on Earth // Gregor Morfill, Max Planck Institute for Extraterrestrial Physics, Germany, Yuri Baturin, S.I. Vavilov Institute of the History of Science and Technology, RAS, Vladimir Fortov, Joint Institute for High Temperatures, RAS
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Note generali	DVD contains "personal footage from the cosmonauts' work in space, their training ... and the science preparations..."
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Preface; Dedication; Table of Contents; Acknowledgements; 1. The Beginning; Iowa City, November 1, 1991; Mir Space Station, November 1, 1991; Meran, Munich, November 2, 1991; Moscow, November 2, 1991; Munich, November 2, 1991; Moscow, November 1, 1991; 2. Background -TheYears Before; The Midnight Sun Workshop in Tromsø; The First Capri Workshop on Dusty Plasmas; Plasmas; Dusty Plasmas; Plasma Crystals; Extraterrestrial Physics; Melting Observed with Individual Particles; 3. The Dawn of the Space Age; Barbados; London, Bonn, Munich; 4. Moscow -The First Meeting; A Butterfly Effect Moscow - Memories of a Visit in 1984 (Gregor Morfill)Moscow Again; 5. Space -The Early Efforts; The Early German Effort: First Parabolic Flights then Rocket Experiments; The First Rocket Experiment; The Soul Searching Begins; Vladimir Fortov in Munich; The Early Russian Effort: Experiments on Mir (PK-1 and PK-2); The Christmas Experiment; Russian Space Programme after the USSR Dissolved (a Flashback); December 1991; March 17, 1992; The International Space Station - How Did it Start?; The ISS Crew; 6. Space - Russia and Germany Join

Hands; The Russian Offer; Making Research Happen
How DLR Viewed this7. Expanding and Stabilising the Research; 8. Twists and Turns of Events; May 5, 1998 Proposal to DLR for an Experiment on the Mir Space Station; The Hole; The Making of PKE; NASA Wants to Stop PKE; NASA Wants to Stop PKE Again; The Pump; 9. Meeting and Training the Cosmonauts; 10. Baikonur -The Russian Spaceport; Baikonur, The Town and The Spaceport: Some History; Visit to the Spaceport: Back to the Story; Soyuz to the Launch Pad; Unscheduled Meeting with the First ISS Crew; Launch to the ISS; Lift-off; Life on the ISS; Some Data about the ISS; Daily Routine; Hygiene Food and Drink Exercise; 11. Launch of PK-3; PK-3 on Board the ISS; Renaming PK-3 to PKE-Nefedov; 12. Korolev -The Forbidden City; Renaming Kaliningrad to Korolev; The Yuri Gagarin Cosmonaut Training Centre; Cosmonaut Training; 13. PK-3Plus - How it Began; A Conspiratorial Meeting in a Moscow Hotel; 14. Some Science Results; Baturin Effect; Crystallisation and Melting at the Atomic Level; Phase Separation -The Oil-Water Problem; Electrorheology -What is it?; Bubbles and Drops at the Smallness Limit; Solitary Waves (Tsunamis) at the Individual Particle Level
The Origin of Turbulence -A Single Particle View15. Some More Science Results; Dynamics of Crystal Defects; Two-dimensional Melting of a Plasma Crystal; Converging Nano-flows; Mach Cones; Heat Conduction in Membranes; 16. Plasma Crystal -The Most Successful Space Station Experiment; 17. Recollections from the Cosmonauts; From Yuri Baturin's Diary; From Mikhail Turin's Report on the ISS after Completing Another Session of the Plasma Crystal 3 Experiment; From an Interview with Mikhail Turin by Yuri Baturin; A Cosmonaut is not just a Lab Assistant!
Talgat Musabaev Talking to Gregor Morfill -A Recollection

Sommario/riassunto

This book looks behind the scenes at the Plasma Crystal laboratory on the International Space Station (ISS) to see how science and research is carried out on the first physical science laboratory in space. As well as the background story of the ISS and the many scientific discoveries that were made, it focuses on the ups and downs on the route to success, and the people involved: the scientists, engineers, agency representatives, and especially, the experimenters in space - the cosmonauts. Complex plasma research is the other focal point of the book, and this field of science is at the forefron
