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SpaceLand microgravity flights to understand the secrets of matter, stars and galaxies

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Our universe was formed as we know it now and it is further evolving thanks to gravity; as a matter of facts, our life and all of us exist thanks to gravity.

Phenomena ranging from crystal growth to foams and fluid coalescence, from condensation of matter to star and galaxies formation and collaps are driven by gravity.

So now think about a laboratory in which all of these phenomena can be reproduced and analyzed in all their respective aspects by increasing, dimming or switching on or off, at will, the effects of gravitational forces: a new era in basic and applied research is born, namely microgravity research.

Microgravity has frequently been associated to human flight in Space, but this understanding can be misleading in many respects. Since the dawn of the spaceflight, less than 550 human beings have been flying in space; this statistic is somewhat disappointing, given that nearly every human on the planet once harbored childhood dreams of routine trips to the stars. Those women and men have, with only a small handful of recent exceptions, been government employees handpicked by space agencies, giving critical inspiration to untold numbers of entrepreneurs, inventors, ordinary citizens and entire new industries and science research communities; with the current approach, the overwhelming majority of people (some seven billion and counting) will never have the opportunity to realize the dream of traveling to space, regardless of personal wealth or talents, and will have not the chance to contribute to that drastic advancement of science, biomedicine and technology that only the weightless enviroment might support.

While most high-tech industries have seen massive improvements in performance per unit cost since the dawn of the space age (most famously the computing hardware industry, which follows the exponential predictions of Moore's Law with almost uncanny precision) human spaceflight has actually gotten more expensive with time: costs of NASA's Mercury missions have been estimated at $265M in 2010 U.S. dollars per flight, while space shuttle missions cost an estimated $1 billion and more, per flight.

Such costs have caused most science communities to wrongly consider microgravity research as something extremely expensive and, eventually, not worthy. On the contrary, microgravity is the key for success in several research disciplines and such operational costs can be drastically lowered. A comparison of those two historic space programs offers some insight into possible ways to break that trend of increasing costs for microgravity reseach, for the increase in space mission cost was driven not by the use of more exotic and costly materials so much as by changes in processes and, most dramatically, by increases in complexity.

As demonstrated with its world’s youngest (11 year old) and world’s oldest (93 year old) men and the first 100% disabled woman flying for microgravity research activities (some commissioned by Nobel-Prize-winner’s research group), SpaceLand has dropped the price of safely flying and experimenting in a large and research-friendly weightless environment from the hundreds of millions of dollars to less than ten thousands EUR, including training and flight qualification; this goal is achieved by drastically reducing the required performance of the systems, the commensurate complexity of the hardware involved, the flight vehicle employed, the flight dynamics and the operational scenarios of the mission and the cost-effective training program required to qualify people to carry out research activities on board.

Providing details on such innovative approach to research, the SpaceLand multimedia pitch shows how scientists of every discipline can access this new microgravity research flight campaigns where also so-called Lunar-gravity and Mars-gravity flight conditions can be experimented in world’s largest flight vehicle to *examine* the previously *unexaminable* and *re-evaluate data long since mastered in a totally new light*, as well as to hand-on experiment, in an unprecedented fashion, all the gravity-driven secrets behind universe matter, nebulas, stars and galaxies.