

## **Into the Water - how Humans can survive deep space travel**

Sandra Bullock in "Gravity" and Jennifer Lawrence in "Passengers" splashed into water in their recent SciFi movies - future interplanetary astronauts may profit from the technique known as full body water immersion according to Jenna Tiwana's work, with which she graduated cum laude from this year's Master of Space Science course at the International Space University ISU in Strasbourg.

Says Volker Damann, MD, experienced astronaut crew surgeon and resident faculty member at ISU: "Indeed, water immersion and long duration space travel are themed in many science fiction movies. But is it science fiction? Jenna did a very thorough literature review and dug into archives and interviewed scientists involved in hyper-g research. Her work is providing a very interesting and comprehensive report, summarizing historic research data and current developments, but also touched upon related areas, such as liquid ventilation, that would be required to provide immersed astronauts with the essential breathing oxygen."

Jenna has a background in Aerospace Engineering and has completed a Master's in Aeronautics and Astronautics at University of Southampton in the UK. Her hobbies include salsa dancing and sky-diving -. She picked the subject because " I wanted to embrace the unique opportunity to research an unfamiliar discipline to me. This allowed me to apply elements of my engineering knowledge to medically benefit future astronauts making interstellar travel a realizable goal. I chose to study at the International Space University as from a young age I have had a passion for space and really wanted to get to grips with all aspects of the industry ranging from space law to rocket science."

The Association of Space Explorers ASE, whose European regional chapter resides on the ISU campus, picked Jenna's

work as the Best Human Spaceflight related report that goes together with a money prize, gratefully sponsored by former ESA astronaut André Kuipers and his foundation in the Netherlands.

ESA Astronaut and ISU faculty member Reinhold Ewald personally presented the award on behalf of ASE and encouraged Jenna and the other MSS 2017 graduates to continue in their efforts to advance space technology and research for the exploration of the solar system by making space missions safer and more feasible.

The Association of Space Explorers is the only professional organization of individuals who have flown into Space. Its international members share their experience of orbital spaceflight in numerous outreach and educational activities. The ASE membership comprises over three quarters of the world's flown astronauts, cosmonauts, and taikonauts.

[www.space-explorers.org](http://www.space-explorers.org)



**Jenna Tiwana receives the award from ASE member astronaut Reinhold Ewald. To the right: Volker Damann, resident faculty member at ISU and Jenni's tutor**