

Am 25. Februar um 14:00 h wird im Seminarraum des Laser-Laboratorium Göttingen Herr Dr. Landgraf einen Vortrag mit folgendem Titel präsentieren:

Chemical Challenges for an Elevator to Space

Space elevators are highly efficient mechanical space launch systems, which could be realised in the mid-term future. They comprise a taut cable connecting the Earth surface with an equatorial geo-synchronous satellite. The dynamics of such a cable is well understood in the taut state. The main challenge to build a space elevator is to find a material strong and light enough to support the tension that must be born by the elevator cable. The 50 GPa/gcm³ required can be provided only by materials that are engineered on a molecular level. The current forerunner are yarns spun out of metre-long carbon nanotube fibres. For such long continuous nano-fibres the inter-fibre forces are strong enough to prevent separation of the individual fibres comprising the yarn under stress. Other candidates could be "collosal carbon tubes" that are mesoscopic structures of amorphous carbon with very low mass densities, but high tensile strengths (few GPa). Current research has raised the hopes to have such material available within the next few years. Other problems of the space elevator have acceptable engineering solutions, so that, it could be possible to revolutionise the access to space in the near term future.

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