Job Title: Space Electric Propulsion Senior Thermal Engineer
Location: Munich, Germany

Company Description:
Our company is a rapidly growing startup in the space industry based in Munich. We are building a revolutionary new form of high power Space Electric Propulsion called Applied-Field Magnetoplasmadynamic (or AF-MPD) propulsion. It will be a game-changer in both near-earth space missions and wider space exploration. Our team is passionate about pushing the boundaries of what is possible and we are looking for like-minded individuals to join us on this exciting journey.

Job Description:
Candidates should have a good familiarity with the thermal management challenges of space electric propulsion thrusters such as conventional Hall Effect or Gridded Ion thrusters. Our first two new designs of AF-MPD thrusters initially will operate at 1 kW and 5kW of electrical input power and will need to dissipate up to 60% half of this power as conductive and radiative cooling in the vacuum of space, including of course to the rest of the spacecraft structure.
From familiarity with today's thrusters you will know this is already near the highest power currently possible with conventional technology. However, our technology is not conventional.
Using new, High Temperature superconducting electromagnets operating at liquid nitrogen temperatures a powerful magnetic field is created which will confine the 2000 degree C plasma plume. This facilitates much higher levels of propulsive power. In consequence, there is greater electrical input power and much higher heat dissipation is needed, while the superconducting coils must be kept from overheating. We have conceptualised and designed a Thermal Management System (TMS) to keep heat transfer from the hot plasma plume from impacting the very cold, superconducting magnetic coil.

Your role will be to collaborate with the Thruster Structural engineers and Electric Propulsion engineers to carry out all the necessary thermal heat transfer calculations and to be part of the overall design team ensuring the thruster can operate continuously without temperature overload of critical systems particularly the super-conducting magnet system.

We can confidently predict you are unlikely to have ever been involved in helping to design something quite like this before!
If this prospect excites you,please read on…….

You will be reporting to both the Chief Engineer and the Thermal expert authority, who in turn report to the CEO of the company. The Chief Engineer will be supporting you personally to ensure we integrate as a collaborative team. We will be optimising propulsive performance together with the required structural design to withstand launch vibration and the thermal demands of continuous operation.

Responsibilities:

- Perform thermal analysis of all the heat paths to ensure the systems and components can withstand the high-temperatures resulting from the plasma exhaust whilst maintaining the very low temperatures required by the superconducting magnet system
- Collaborate with the rest of the engineering team to ensure that structures are designed so that heat transfer to critical components is mitigated on temperature critical components
- Prepare technical reports, publications, and presentations for internal and external audiences
- Ensure that designs from a thermal perspective meet all safety and reliability requirements mandated by the space industry
- Stay up-to-date with the latest developments in thermal and structural space engineering and incorporate new advancements into designs

Qualifications:

- Bachelor's or Master's degree in Aerospace Engineering, Thermal Engineering, Physics or related field
- Minimum of 4 years of experience in thermal analysis of structures and providing input to component design to mitigate heat transfers to acceptable levels
- Experience with high and low temperature systems and operation
- Experience with calculating thermal resistances across assembly and sub-assembly interfaces taking into account fixing torques, surface finishes, plating effects etc.
- Ideally, familiarity with multi-material systems with diverse characteristics operating over a large temperature range
- Strong problem-solving and analytical skills. In-depth experience in the space or aerospace industry is essential
- Excellent communication and teamwork skills
- Ability to work in a fast-paced environment and manage multiple projects simultaneously

Interested applicants should be EU citizens or with long term permits to work in the EU. Excellent English language skills, both spoken and written, are essential. Support to relocate to the area around Munich can also be considered for the right applicants.

The remuneration package will be competitive and will include shares in the company.

Please send your detailed CV (including software design packages you have used) plus a covering letter telling us why you are enthusiastic to be part of our team!

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