

METAL CONTACT WEARING IN VACUUM

148

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Two very accurately flat metal surfaces will join spontaneously as a perfect 'weld' if interfaced while both surfaces are still clean and flat.

It might be possible to develop this concept commercially in space, using space vacuum to keep surfaces unpolluted, for the fabrication of complex shapes requiring assembly from several biologically difficult components. This might be done in a sphere, with some aperture to space to monitor vacuum, but with mechanisms (~~either~~ electrostatic, magnets?) to collect up machining particles etc. The machining could be done via lasers.

GAS PRODUCTION FROM ORGANICS WITH LASERS/SUNBEAMS 1987 Aug 17

Efficient production of fuel gas from organic materials such as timber and plants matter will need anaerobic conditions (as in swamps - marsh gas). Most destructive wood distillation processes use combustion of the wood (with air) to provide the heat source, which basically limits the yield of useful gases.

It may be possible to construct a cheap and efficient gas fuel producer, fed on wood etc, which uses heat from lasers or focussed sunlight to act on the raw material in oxygen conditions.

ANTI-FOULING PAINT

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Ship antifouling paints are very difficult and expensive to make work, ~~and~~ because fouling organisms have developed highly efficient attachment devices. The cheap answer might lie in some sort of synthetic 'skin' which is both shed periodically, with the fouling organisms, and is also renewed automatically (grown). Both living and non-living mechanisms for 'skin' production are theoretically feasible. Skins could also be devised with other desirable properties, e.g. low friction, possibly ^{over} rhythmic flexing to aid locomotion?