

59th IISL COLLOQUIUM ON THE LAW OF OUTER SPACE (E7)  
Legal Perspectives on Space Resources and Off-Earth Mining (2)

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3D PRINTING USING MATERIAL FROM CELESTIAL BODIES: A METHOD TO CIRCUMVENT  
THE NON-APPROPRIATION PRINCIPLE?

**Abstract**

Additive manufacturing or 3d printing enables manufacturing physical objects from three-dimensional digital models by laying down successive layers of material. Technology demonstrations have proved that such material could originate from a celestial body, such as an asteroid or the Moon. Thus, new objects could be manufactured using materials from celestial objects. Most legal orders provide that the manufacturer of a new object acquires original ownership thereon, while eventual property rights over the material used are lost. Such provision could qualify as a recognized general principle of law under Art. 38(1)(c) of the ICJ statute. Ownership through manufacturing might then be acquired, irrespective of the non-appropriation principle of Art. II Outer Space Treaty (OST). This paper examines whether the non-appropriation principle could be circumvented through manufacturing using celestial materials. It is submitted that the OST should prevail as *lex specialis* and for safeguarding the *effet utile* of the OST. However, this leaves open the practical question of the ownership of 3d-objects manufactured in space. It appears that the manufacturer would enjoy all elements of ownership, without being an owner according to international law. To solve the problem, it would be appropriate to establish an international organization under the UN auspices, at the example of the International Seabed Authority. Such organization would be the international administrator of the celestial resources and could grant tradable exploitation licenses to interested persons or entities against a fee. The fee could be a lump amount or a percentage of the net profits that the person/entity derives from exploitation of the resources. Ownership on the manufactured objects could then be legally recognized under international law, without affecting the non-appropriation principle.