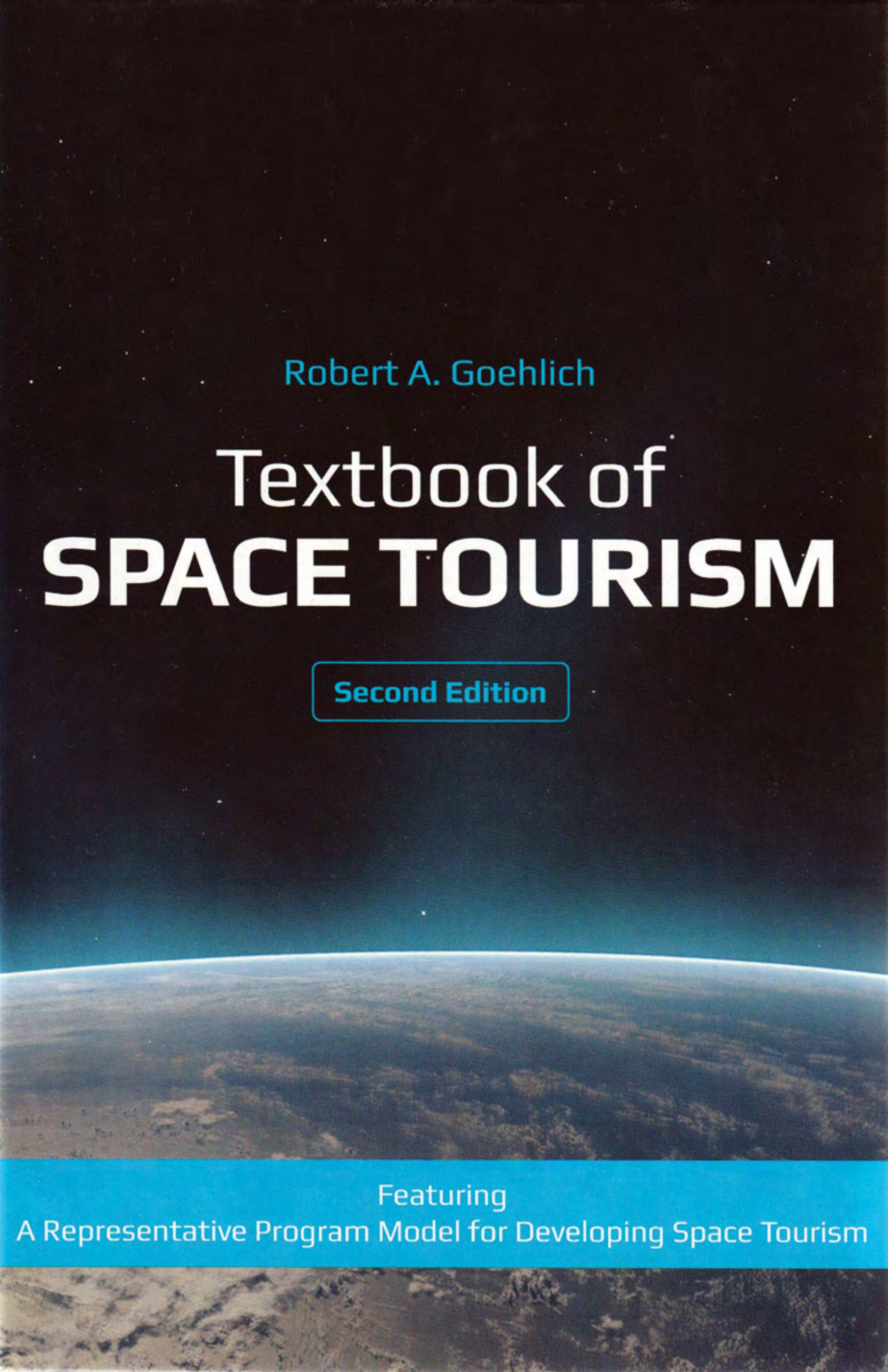


Publication Ziolkowski-Module

Concept of a tourist module for the ISS

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Production & Cost Estimation: Dr. Robert A. Goehlich





Robert A. Goehlich

Textbook of **SPACE TOURISM**

Second Edition

Featuring
A Representative Program Model for Developing Space Tourism

6.5.4 Insurance

Space tourism is a new venture, and insurance will be a major issue until it reaches a mature level of development. Insurance will be required for passengers who are traveling in space and for the related equipment and facilities (Figure 109), but the small scale of the space travel industry will be insufficient to enable accurate insurance underwriting. Therefore, for space tourism to become a vital commercial enterprise, limits will be necessary on the liability of owners and operators of space facilities and vehicles (Collins & Yonemoto, 1998).

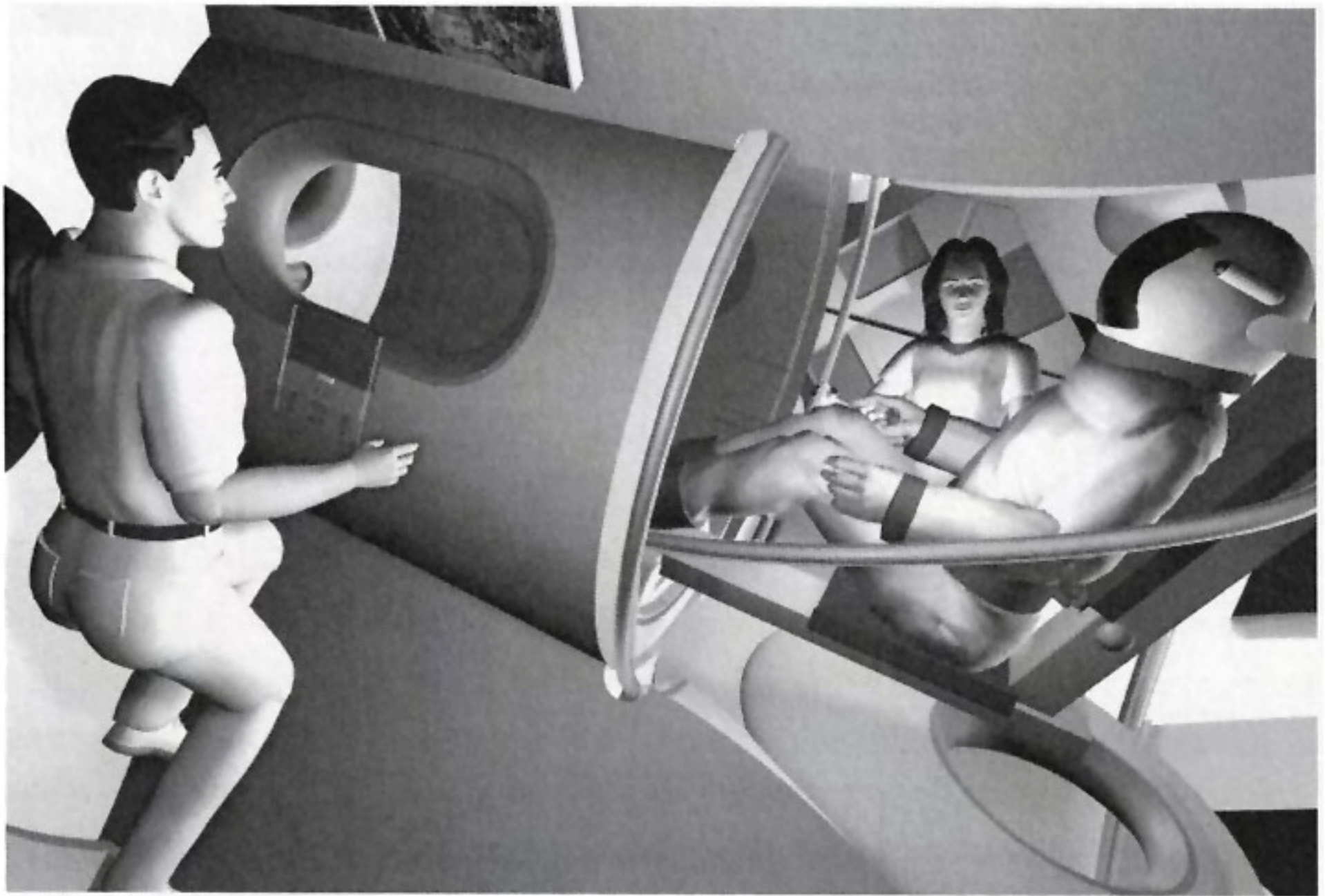


Figure 109. Space tourists with EVA module (Schumann Design)

A high failure rate will certainly not be favorable for space tourism, although many activities involve even greater risks. Because of the assumed high risk of space tourism ventures, insurance, if it is available at all, will be very expensive until the insurance companies have coherent underwriting information. Catastrophes in which people are killed, e.g., aviation disasters, are assigned greater importance in people's minds than other deaths (Moore, 1983). Even if the number of negative incidents is low, the conse-

intent—saying “I would like to make a trip into space”—and action—actually paying for a ticket.

Ziliette (2010) investigated the relevance of the Futron/Zogby survey conclusions with recent market and customers’ data; basically it shows a good matching. Only “the first customer data released by Virgin Galactic shows that the average age is lower than expected in the Futron study” (Ziliette, 2010, p. 1549).

In addition, as noted in the chapter, “Model of a Program Scenario,” there is a risk that the suborbital space tourism market would be almost instantly displaced by the introduction of a product capable of reaching orbit. At this point, no one knows whether a suborbital market would last long enough for manufacturers and operators to recoup their investments prior to the introduction of an orbiting transportation system.

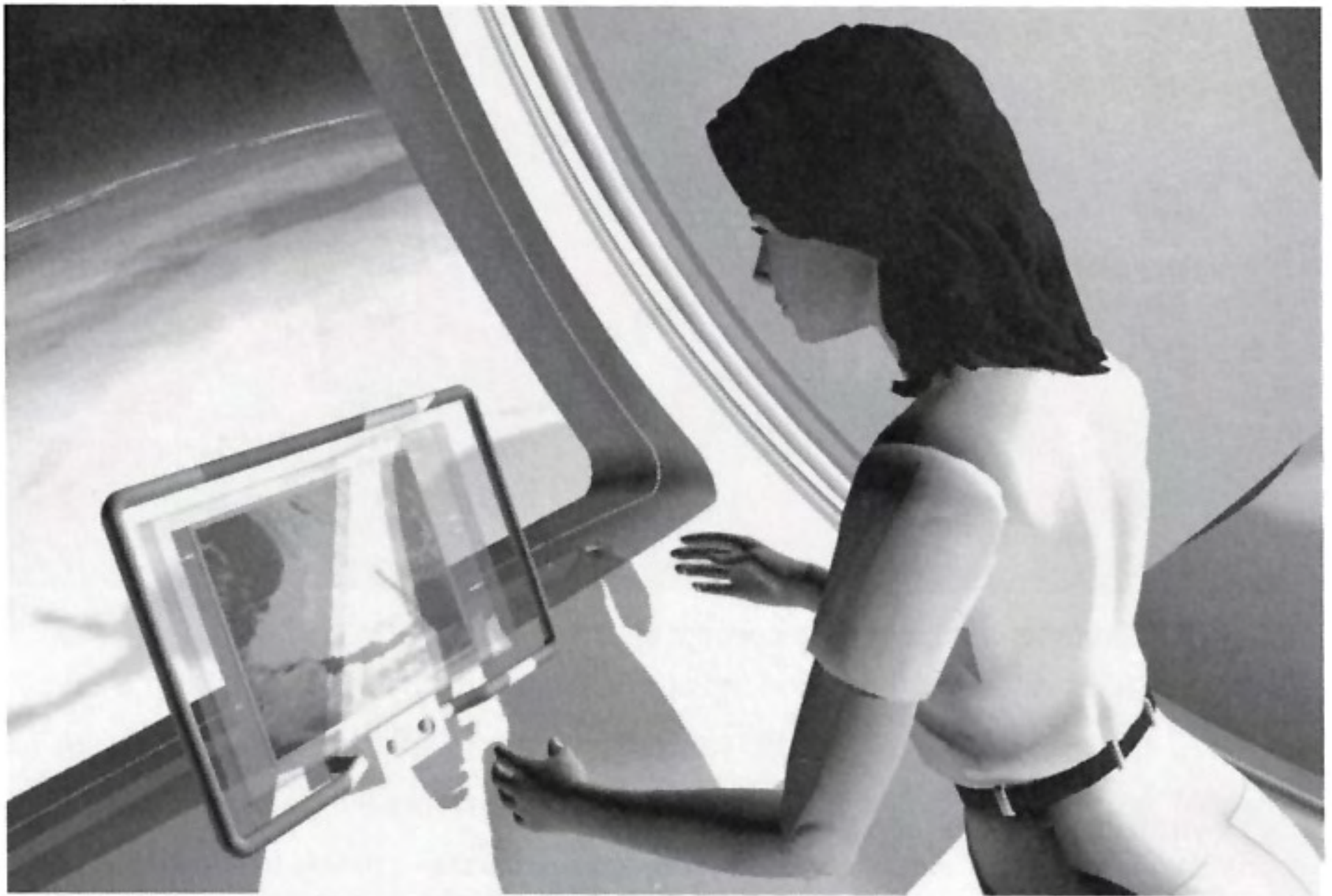


Figure 106. Space tourist with GPS terminal (Schumann Design)

6.5.2 Market Supply

As noted in the chapter “The Space Tourism Market,” there are more than three hundred proposed vehicle concepts for RLVs worldwide that could be produced by manufacturers from various countries (Goehlich, 2006).

mass space tourism before investing in separate space hotels orbiting Earth. The *Ziolkowsky Module* concept (Figure 27) is one example of such a special module, which is attachable to an existing space station (Goehlich & Schumann, 2004). The primary task is to use cost-engineering techniques to design a low-cost module that fulfills passenger needs in terms of comfort, safety, and positive experience. The structure of the module is generally sub-divided into three areas: an area that contains four living quarters that can be used as single or double cabins, an area that serves as a communal room and viewing platform, and an area that contains technical equipment and sanitary facilities. The total ticket price per passenger for a one-week stay is estimated at \$2.2 million (Schumann & Goehlich, 2011). The objective of the price estimation to maximize profit results in the scenario in which eight passengers and two staff stay one week at the *Ziolkowsky Module* with twenty-six tours per year over a period of ten years.



Figure 27. *Ziolkowsky Module* connected to ISS (Schumann Design)

The *atmosphere* of such an attachable module to a space station would be comparable to that of a cruise on a cargo ship as a passenger who has access to a luxury apartment on board.