

HAW Hamburg in cooperation with DGLR, RAeS, ZAL und VDI invites to a lecture

## Commercial Space Travel

Prof. Pat Artis, Ph.D.,  
Department of Aerospace and Ocean Engineering,  
Virginia Tech, USA

Lecture followed by discussion  
No registration required!  
Entry free!

Date: Thursday, 06.06.2019, 18:00  
Location: HAW Hamburg  
Berliner Tor 5  
Hörsaal 01.13

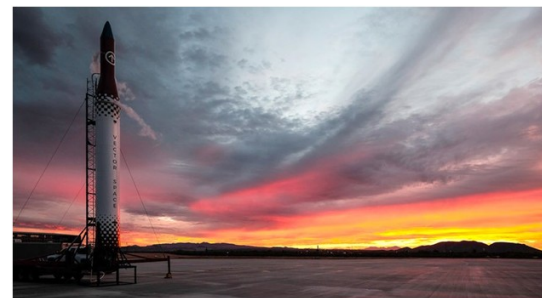
In little more than a decade, **SpaceX**, **Blue Origin**, and a host of other upstart companies have changed the conversation about commercial space. While the plans and dreams of these pioneers were initially dismissed by nation states and major corporate launch providers, they have emerged as disruptors for the global launch market.

On March 13th, commercial launch was further legitimized by NASA Administrator Jim Bridenstine's announcement that NASA's new flagship rocket, the Space Launch System (SLS), would not be ready in 2020 for its first mission. Bridenstine suggested that Orion's flight around the Moon, the cornerstone mission for the SLS, could be performed by the commercial launch providers. "We have amazing capability that exists right now that we can use off the shelf in order to accomplish this objective," he said.

This talk will chronicle the evolution of the disruptive commercial industry. Whether it is the billionaires, Bezos and Musk, or small bootstrap providers like **Rocket Lab**, **Sierra Nevada**, or **Vector Space**, these disruptors are rapidly reducing the cost of delivering satellites to orbit. How did we get here and where are we going are just two of the questions that will be examined by this lecture?



Falcon Heavy, SpaceX (picture: Artis)



Vector-R rocket Vector Space Systems (picture: Artis)

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