



Links zur Show vom 2. Dezember 2021

Weltraumtourismus – Reiche Sünder?

Virgin Galactic Flug mit Richard Branson

<https://youtu.be/ZPrB3WvnZpE>

<https://youtu.be/ZPrB3WvnZpE>

Fehler beim Virgin-Galactic-Flug

<https://www.bbc.com/news/science-environment-58421796>

<https://edition.cnn.com/2021/09/02/tech/richard-branson-virgin-galactic-space-danger-scn/index.html>

<https://www.theverge.com/2021/9/29/22701195/faa-virgin-galactic-spaceshiptwo-cleared-investigation>

Blue Origin: Flug mit Wally Funk

<https://nypost.com/2021/07/21/wally-funk-gives-jeff-bezos-blue-origin-flight-lukewarm-review/>

<https://youtu.be/LpiBhOQtPo>

Blue Origin: Flug mit William Shatner

<https://youtu.be/zLP5jmZkGwc>

Alan Shepards Tochter Laura Shepard Churchley fliegt mit Blue Origin

<https://www.orlandosentinel.com/space/os-bz-blue-origin-alan-shepard-daughter-michael-strahan-to-fly-20211123-h27csvchsr6npsjvffm5idza-story.html>

Umweltkritik an Weltraumtourismus von Prinz William

<https://www.bbc.com/news/uk-58903078>

<https://www.theguardian.com/science/2021/oct/14/prince-william-criticises-space-race-tourism-new-frontier>

<https://www.theecoexperts.co.uk/blog/royal-family-carbon-footprint>

Umweltbelastung durch Raketen

<https://www.independent.co.uk/climate-change/news/blue-origin-launch-carbon-emissions-b1937774.html>

<https://eu.usatoday.com/story/news/factcheck/2021/07/28/fact-check-jeff-bezos-new-shepard-rocket-launch-didnt-emit-carbon/8073047002/>

<https://www.livescience.com/new-shepard-emissions.html>

<https://www.space.com/environmental-impact-space-tourism-flights>

<https://www.tourism-review.com/space-tourism-has-enormous-ecological-footprint-news12133>

Teure Flüge – schlechter Business Case?

<https://www.bbc.com/news/business-58120009>

<https://www.insider.com/tom-hanks-offered-space-flight-before-william-shatner-2021-11>

<https://www.technologyreview.com/2021/09/15/1035797/inspiration4-spacex-private-mission/>

Orbital Reef

<https://www.blueorigin.com/news/orbital-reef-commercial-space-station>

<https://www.geekwire.com/2021/blue-origin-teams-sierra-space-boeing-others-orbital-reef-space-station-project/>

Orbital Assembly Investment

<https://netcapital.com/companies/orbital-assembly>

Investment in Space Tourismus und ISS-Nachfolge

<https://www.fool.ca/2021/10/28/is-outer-space-the-next-investment-bubble/>

<https://arstechnica.com/science/2021/10/a-once-quiet-battle-to-replace-the-space-station-suddenly-is-red-hot/>

<https://thehill.com/opinion/technology/580432-nasa-can-facilitate-the-commercial-space-station-race>

SpaceX – Starship Update

Boca Chica

<https://eu.floridatoday.com/story/tech/science/space/2021/08/16/spacex-elon-musk-starbase-texas-starship-flashback-1960-s-florida/5502243001/>
<https://www.sciencefocus.com/news/starbase-texas-inside-elon-musks-plans-to-build-the-city-of-the-future/>
<https://www.google.com/url?q=https://www.teslarati.com/spacex-starbase-starts-wide-bay-assembly>
<https://www.teslarati.com/spacex-starship-orbital-launch-pad-finishing-touches/>

Starbase Tour with Elon Musk

Teil 1: <https://youtu.be/t705r8ICkRw>
Teil 2: <https://youtu.be/SA8ZBJWo73E>
Teil 3: <https://youtu.be/9ZInbs-NBUI>

Super Heavy

<https://www.teslarati.com/spacex-super-heavy-first-33-engine-thrust-puck-starbase/>
<https://www.teslarati.com/spacex-starship-first-two-super-heavy-boosters-progress/>
<https://www.teslarati.com/spacex-starbase-super-heavy-b4-next-steps/>

Raptor-Triebwerke

<https://engineercalcs.com/spacex-raptor/>
<https://www.space.com/starship-engine-crisis-spacex-elon-musk>

Hitzeschutz Starship

<https://spaceexplored.com/2021/09/27/starship-20-loses-thermal-protection-tiles/>
<https://futurism.com/the-byte/starships-heat-shield-looks-like-high-tech-armor>
<https://wccftech.com/spacexs-reusable-heatshield-will-be-studied-by-nasa-at-3000-mph/>
<https://www.teslarati.com/spacex-starship-boca-chica-heat-shield-bakery/>

SpaceX in der Krise?

<https://www.theverge.com/2021/11/30/22809720/elon-musk-spacex-raptor-engine-crisis-bankruptcy-starship>
<https://www.sfgate.com/business/article/Elon-Musk-responds-to-rumors-of-possible-SpaceX-16666197.php>

Blue Origin – New Glenn

<https://spaceflightnow.com/2021/11/21/blue-origin-transfers-pathfinder-rocket-to-cape-canaveral-launch-pad/>
<https://www.geekwire.com/2021/blue-origin-practices-dummy-version-new-glenn-orbital-rocket-florida/>

Anti-Satellite (ASAT) – Space Wars

Russland's neuster Test

<https://spacenews.com/russia-destroys-satellite-in-asat-test/>

<https://futurism.com/russia-actually-fine-satellite>

<https://scitechdaily.com/russian-anti-satellite-weapon-test-what-happened-and-what-to-do-now/>

<https://spacenews.com/space-force-official-satellites-in-orbit-have-become-pawns-in-geopolitical-chess-games/>

<https://www.nasa.gov/press-release/nasa-administrator-statement-on-russian-asat-test/>

<https://www.space.com/russia-asat-test-space-debris-dangerous-irresponsible>

USA

<https://www.airspacemag.com/military-aviation/first-space-ace-180968349/>

<https://www.theweek.in/news/sci-tech/2019/03/27/history-anti-satellite-weapon-us-asat-missile.html>

China

https://swfound.org/media/9550/chinese_asat_fact_sheet_updated_2012.pdf

https://www.files.ethz.ch/isn/113985/2007-06_SR.pdf

ASAT allgemein

https://docs.google.com/spreadsheets/d/1e5GtZEzdo6xk41i2_ei3c8jRZDjvP4Xwz3BVsuHwi48/edit#gid=1252618705

https://en.wikipedia.org/wiki/Anti-satellite_weapon

Weltraumschrott

<https://de.wikipedia.org/wiki/Weltraum%C3%BCll>

ClearSpace-1

https://www.esa.int/Safety_Security/Clean_Space/ESA_commissions_world_s_first_space_debris_removal

<https://clearspace.today/>

CHEOPS Collision Avoidance Warning

<http://nccr-planets.ch/de/blog/2020/11/05/cheops-musste-weltraumschrott-ausweichen/>

Schweiz und Weltraumschrott

https://www.unibe.ch/aktuell/medien/media_relations/medienmitteilungen/2020/medienmitteilungen_2020/weltraumschrott_erstmals_am_tag_beobachtet/index_ger.html

Interaktive Weltraumschrott-Karte

<https://platform.leolabs.space/visualization>

Film "Meteor"

<https://youtu.be/RW6jS9bJ5bo>

DART Mission

<https://dart.jhuapl.edu/>

JWST – Neues Weltraumteleskop in Greifweite

James Webb Space Telescope JWST

<https://youtu.be/6VqG3Jazrfs>

Missions-Websites

<https://jwst.nasa.gov/content/webbLaunch/index.html>

https://www.esa.int/Science_Exploration/Space_Science/Webb

JWST Media Kit

<https://jwst.nasa.gov/content/webbLaunch/assets/documents/WebbMediaKit.pdf>

Q&A zum JWST

<https://www.nasa.gov/content/goddard/webb-conversations-its-all-about-infrared-why-build-the-james-webb-space-telescope>

Grafiken ESA

https://www.esa.int/ESA_Multimedia/Images/2021/06/Webb_and_Ariane_5_a_fit_made_perfect

https://www.esa.int/ESA_Multimedia/Images/2021/06/Webb_unfolding_sequence

https://www.esa.int/ESA_Multimedia/Images/2009/10/JWST_stowed_inside_the_Ariane_52

Lagrange Point

<https://www.nasa.gov/feature/episode-9-we-asked-a-nasa-scientist-what-are-lagrange-points>

https://www.esa.int/Space_in_Member_States/Germany/Exklusiver_Beobachtungsplatz_fuer_Astronomen

Infrarot

<https://science.howstuffworks.com/jwst-infrared.htm>

<https://www.nasa.gov/content/goddard/webb-conversations-its-all-about-infrared-why-build-the-james-webb-space-telescope>

<https://jwst.nasa.gov/content/about/innovations/infrared.html>

<https://chrsparkins.files.wordpress.com/2013/09/electromagnetic-spectrum.jpg>

Goldener Spiegel

<https://www.youtube.com/watch?v=bUedD5PBksI>

MIRI

<https://www.nasaspaceflight.com/2021/11/jwst-miri-instrument/>

<https://quanz-group.ethz.ch/research/instrumentation/jwst.html>

Erklärungs-Videos

<https://youtu.be/uUAvXYW5bml>

<https://youtu.be/tnbSlbsF4t4>

Video zum Start und zum Entfalten von JWST

https://youtu.be/RzGLKQ7_KZQ

<https://youtu.be/v6ihVeEoUdo>

https://youtu.be/Do_FSmyj15k

Zwischenfall bei Integration von JWST

<https://youtu.be/lfLoayApkk4>

<https://www.space.com/james-webb-space-telescope-deployment-points-of-failure>



Oliver Bichsel



Guido Schwarz

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