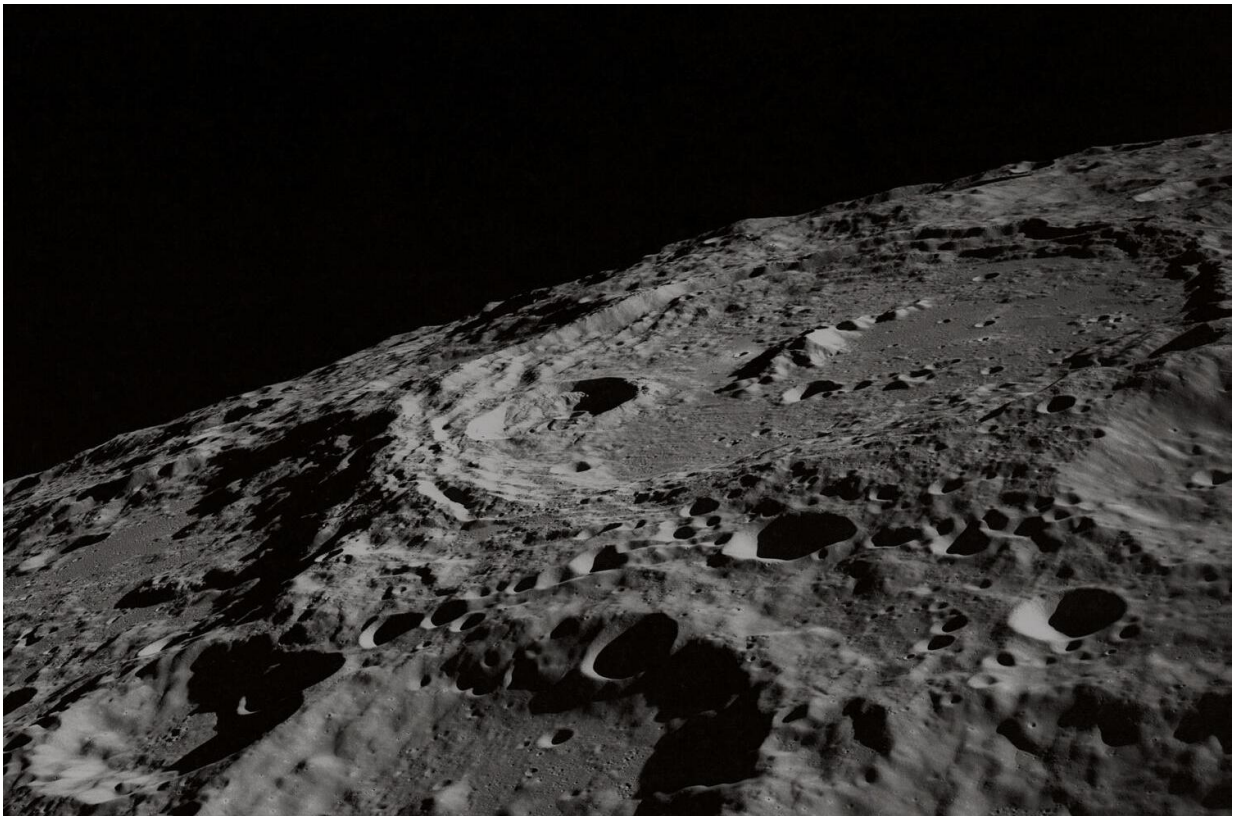


# Solid-state battery testing to be part of ispace HAKUTO-R program

February 25 2019, by Bob Yirka

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Officials with ispace, a commercial enterprise with ambitions of creating a lunar exploration system, have announced that part of their initial program will include testing a solid-state battery on the surface of the

moon. The current plan is to test the battery with a lunar rover as early as 2021.

Scientists have been trying to figure out a way to make [solid-state batteries](#) that are commercially viable for many years, but to date, have not succeeded. That has not stopped Japanese company NGK Spark Plug (the ispace partner responsible for making the batteries to be sent to the moon) from making plans to test such a [battery](#) on the [surface](#) of the moon in just two years.

Solid-state batteries are based on a non-liquid electrolyte that avoids the explosive nature of batteries currently in use, such as lithium ion. The problem is that an alternative material is lacking—those currently being tested can only be recharged a few times and they cost far too much to be commercially viable.

NGK Spark Plug has announced that the battery it sends to the moon will have a ceramic electrolyte. The company does not expect the battery to be useful, at least not at this point—the goal is to find out if such a battery could survive and function in the hostile conditions on the surface of the moon. Equipment on the moon will have to be able to handle temperatures ranging from  $-173\text{C}^{\circ}$  during shady periods to 127 degrees C when the sun is shining. It will also have to deal with dust and solar radiation.

The ispace moon project is called the HAKUTO-R program—current plans call for sending several craft to the moon over the course of several years. The first will be a lunar orbiter and the second will involve landing a craft on the surface of the [moon](#), which in turn will launch a rover carrying the solid-state battery. The first mission is scheduled to take place sometime next year, while the second is scheduled for 2021. Both will be launched using SpaceX rockets.

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