

ATHANASSIOS KALIUDIS

# Lightsaber? Forget it!

**Anyone who runs to the cinemas on December 14 to watch the premiere of Star Wars 8 may have a Darth Vader or Chewbacca mask on their heads. Or maybe a Stormtrooper costume. What he or she will definitely not have is a lightsaber that really works. Why is that? We thought about it.**

You think of Star Wars, you picture lightsabers. George Lucas' space saga and the legendary weapon are inextricably linked, with the high-energy blade featuring in countless battles and duels between Jedi knights and the Sith, between the forces of good and evil. Pure science fiction, right? Pretty much. But what if… Let's say we wanted to make one of these lightsabers. There'd certainly be a fair few challenges to overcome first!

Three reasons why there is no lasersaber:

**1. A Powerplant in your hand?**

One of the less tricky aspects is the question of power supply. How much power does a lightsaber require, and, more importantly, where would it come from? Let's work on the assumption that we need to generate one kilowatt of laser power. This requires a powerful battery, which we could incorporate into the grip. A cell phone battery would certainly fit the bill in terms of size and shape – but with an average output of 1,500 mAh, this idea is not nearly powerful enough. What other options are there? A car battery, perhaps? If we decide to worry about ergonomics later, then 40 ampere-hours and a highly efficient diode laser might be enough to generate a laser beam…for a few seconds. Well – at least it's a start!



Obi-Wan Kenobis Lightsaber (Picture: Gernot Walter)

**2. Stop right there**

Second problem: What would make the beam of light suddenly stop, after 100 cm or so? In reality, this wouldn't happen. Unless we had a mirror to reflect the laser beam back on itself after it had travelled a specific distance. But that raises the question of how to attach and position a mirror at the end of the lightsaber without physically connecting it to the grip.

**3. Two photons meeting in mid air**

Which brings us to the third and most problematic issue: What is there to stop two lightsabers from passing through each other? Nothing! In the movies, we see combatants pushing and shoving their blades against each other, but according to the laws of physics this is impossible. Photons don't exert forces on each other; in reality the light beams would simply become superimposed. So if two lightsaber-wielding opponents were to cross blades, nothing would happen – they would simply cut holes in the air. Unfortunately, this means that real-life lightsaber duels could never happen.

These may be the three most obvious knock-out criteria, but there are undoubtedly plenty more reasons why lightsabers will forever be confined to the realms of science fiction. And even if we were able to overcome the laws of nature, we couldn't make one anyway: George Lucas holds the patents.



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