# Article information:

Toward laser welding of glasses without optical contacting | SpringerLink  
<https://link.springer.com/article/10.1007/s00339-015-9377-8>

# Article summary:

1. Ultrashort laser pulses can be used to weld transparent materials without the need for an intermediate layer or optical contact.

2. Bursts of ultrashort laser pulses with an individual pulse energy of up to 10μJ were used to maximize the size of the molten volume and bridge gaps with a height of about 3μm.

3. The breaking strength of laser-welded fused silica samples without an optical contact was determined to be up to 73 MPa, equivalent to 85% of stability of the pristine bulk material.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy, as it provides evidence for its claims in the form of experiments conducted by the authors. The article also cites relevant literature in order to support its claims, which adds credibility to its findings. Furthermore, the article does not appear to have any promotional content or partiality towards any particular point of view, as it presents both sides equally and objectively.

However, there are some points that could be improved upon in terms of trustworthiness and reliability. For example, while the article mentions potential applications for laser welding such as optics, microfluidics, optofluidics and precision machinery, it does not provide any evidence or examples that demonstrate how these applications could benefit from this technology. Additionally, while the article mentions possible risks associated with laser welding such as bulging of sample surfaces and ejection of molten material in gaps between samples, it does not provide any information on how these risks can be mitigated or avoided. Finally, while the article states that different glass combinations can be welded using ultrashort laser pulses due to only locally induced stress, it does not provide any evidence or examples that demonstrate this claim.

# Topics for further research:

* Laser welding applications
* Risks associated with laser welding
* Mitigation of laser welding risks
* Ultrashort laser pulse welding
* Glass combinations for laser welding
* Locally induced stress in laser welding

# Report location:

<https://www.fullpicture.app/item/a48e6ae9ddf13e2c7be3f1e50d636580>