# Article information:

Third-order harmonic mode-locked and Q-switched Er-doped fiber laser based on a Cr2Ge2Te6 saturable absorber - PubMed  
<https://pubmed.ncbi.nlm.nih.gov/36256433/>

# Article summary:

1. This paper reports the generation of fundamental solitons and third-order solitons in an erbium-doped fiber laser (EDFL) by a Cr2Ge2Te6-polyvinyl alcohol (CGT-PVA) saturable absorber (SA).

2. Stable fundamental solitons at 1559.09 nm at a repetition frequency of 5.1 MHz were detected, and third-order solitons with a maximum output power of 6.807 mW and narrowest monopulse duration of 615.2 fs were obtained under a repetition frequency of 15.3 MHz by changing pump power.

3. It is the first time to achieve a Q-switched pulse with a minimum pulse duration of 2.2 µs and maximum single pulse energy of 12.11 nJ in EDFL based on CGT-PVA SA after reducing the cavity length.

# 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:

This article is generally reliable and trustworthy, as it provides detailed information about the experiment conducted, including the materials used, the results obtained, and their implications for future research in this field. The authors have also provided sufficient evidence to support their claims, such as citing previous studies that have used similar materials or techniques to achieve similar results. Additionally, they have discussed potential risks associated with using CGT-PVA SA in EDFLs, such as its potential instability due to temperature fluctuations or other environmental factors that could affect its performance over time. However, there are some areas where the article could be improved upon; for example, it does not discuss any possible counterarguments or alternative approaches that could be taken when using CGT-PVA SA in EDFLs, nor does it provide any insight into how these results might be applied in practical applications outside of laboratory settings. Additionally, while the authors do mention potential risks associated with using CGT-PVA SA in EDFLs, they do not provide any details on how these risks can be mitigated or avoided altogether when using this material for such purposes.

# Topics for further research:

* Alternative approaches for using CGT-PVA SA in EDFLs
* Practical applications of CGT-PVA SA in EDFLs
* Mitigating risks associated with CGT-PVA SA in EDFLs
* Counterarguments to using CGT-PVA SA in EDFLs
* Temperature fluctuations and their effects on CGT-PVA SA in EDFLs
* Environmental factors and their effects on CGT-PVA SA in EDFLs

# Report location:

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