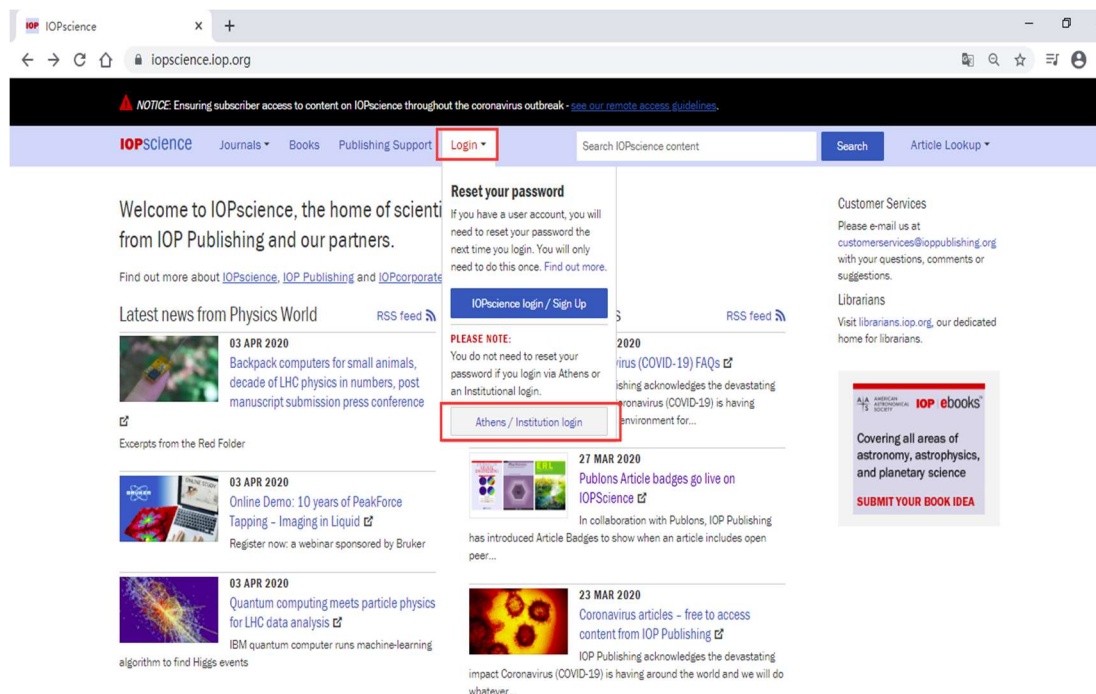


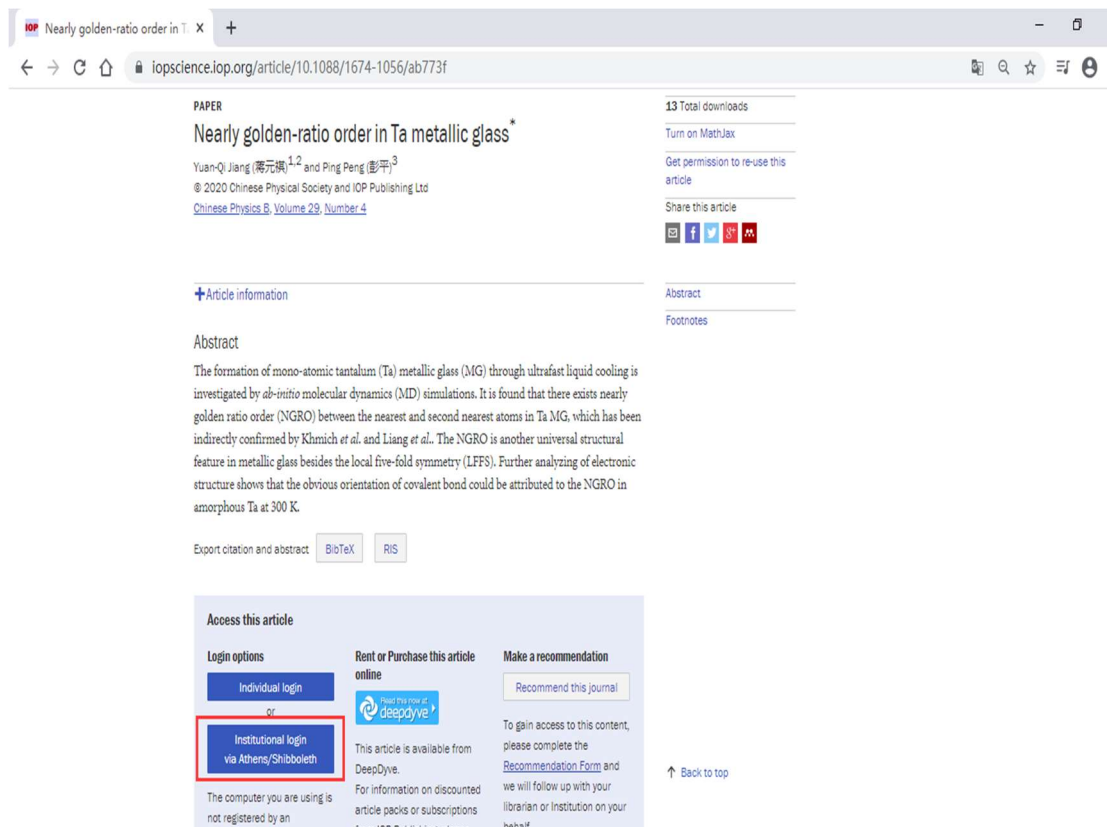
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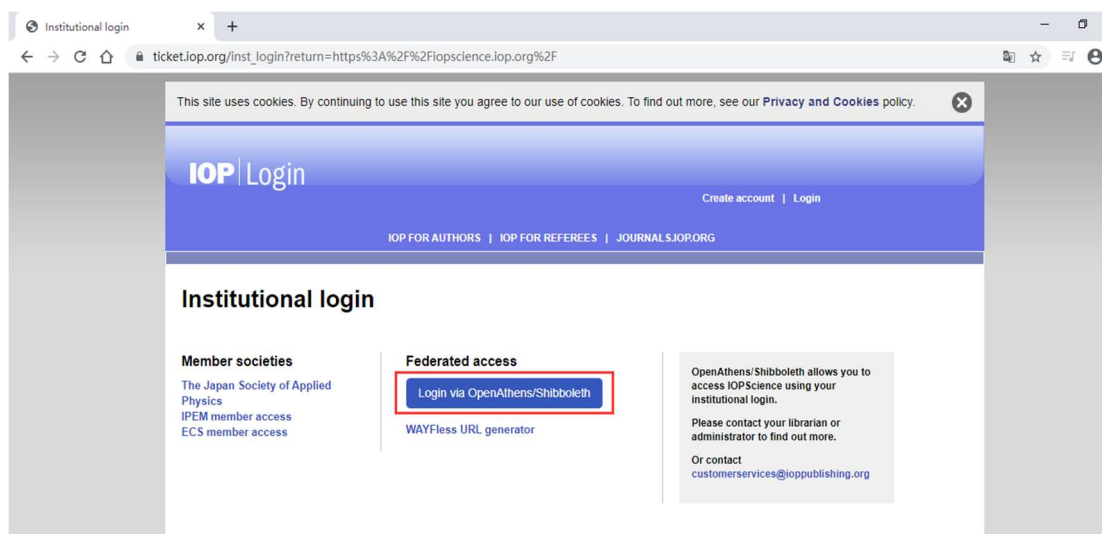
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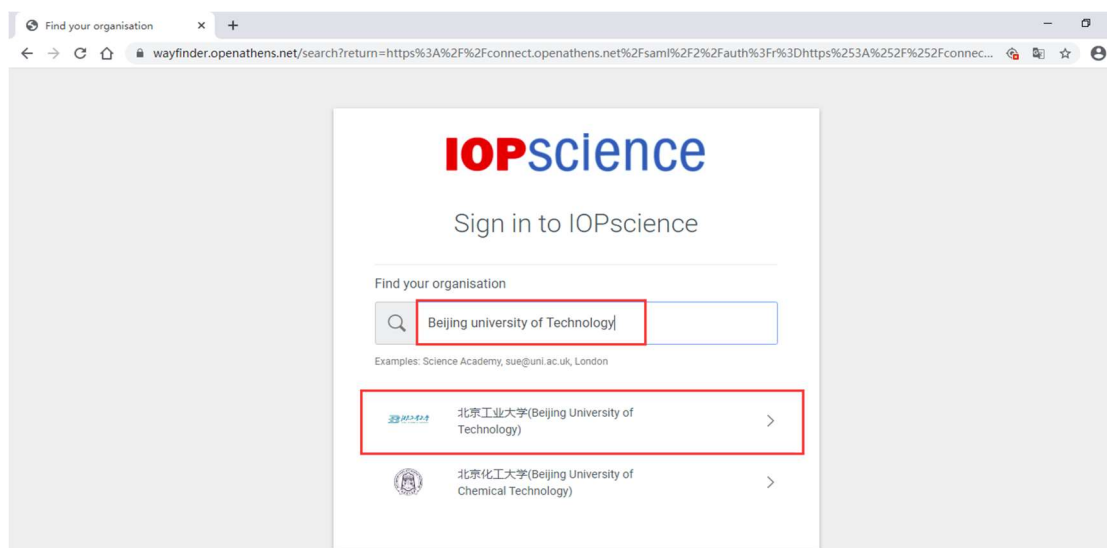
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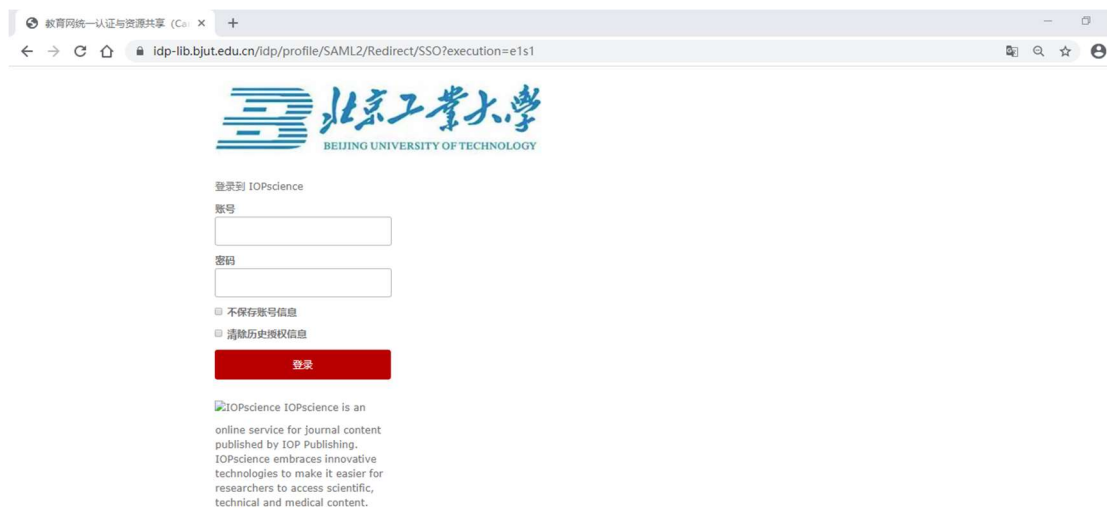
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3. “Find your organisation”中输入：Beijing University of Technology，选择下方显示的“北京工业大学（Beijing University of Technology）”登录。



4. 北京工业大学登陆页面，输入学校信息门户的用户名和密码。



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Nearly golden-ratio order in Ta metallic glass\*

Yuan-Qi Jiang (蒋元祺)<sup>1,2</sup> and Ping Peng (彭平)<sup>3</sup>

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[Chinese Physics B, Volume 23, Number 4](#)

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Abstract

The formation of mono-atomic tantalum (Ta) metallic glass (MG) through ultrafast liquid cooling is investigated by *ab-initio* molecular dynamics (MD) simulations. It is found that there exists nearly golden ratio order (NGRO) between the nearest and second nearest atoms in Ta MG, which has been indirectly confirmed by Khmich *et al.* and Liang *et al.*. The NGRO is another universal structural feature in metallic glass besides the local five-fold symmetry (LFFS). Further analyzing of electronic structure shows that the obvious orientation of covalent bond could be attributed to the NGRO in amorphous Ta at 300 K.

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1. Introduction

Since the first discovery of metallic glass (MG) in the 1960s,<sup>[1]</sup> understanding the local atomic structures of various types of MGs has never stopped and still remains a crucial issue in materials

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3.3. NGRO in Ta metallic glass

3.4. Electronic structure of Ta metallic glass

4. Discussion

5. Conclusion

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