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## XIV International Conference on Mathematics, Science and Technology Education

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# XIV International Conference on Mathematics, Science and Technology Education

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**Abstract.** This paper represents a preface to the Proceedings of the XIV International Conference on Mathematics, Science and Technology Education (ICon-MaSTEd 2022) held at the Kryvyi Rih State Pedagogical University, Ukraine, 18–20 May 2022. Background information and the organizational structure of the meeting, proceedings structure, and acknowledgments of the contributions of the many people who made the conference a success are presented.

## 1. Background

The **International Conference on Mathematics, Science and Technology Education (ICon-MaSTEd)** is a peer-reviewed international conference, which covers research on mathematics, science and technology education, along with technology-enhanced learning, including blended learning, E-learning, ICT-based assessment, mobile learning, etc. (figure 1)

Since 2001, ICon-MaSTEd is the premier interdisciplinary forum for social scientists, academicians, researchers, professionals, policymakers, postgraduate students, and practitioners to present their latest research results, ideas, developments, and applications [1–3]. There is an urgent general need for principled changes in mathematics, science and technology education elicited by promising theories, models, tools, services, networks, and communications.

There were 94 submissions received. Each submission was reviewed by at least 3 program committee members. The committee decided to accept 42 papers.

The spread of the coronavirus that causes COVID-19 and the ongoing Russian invasion of Ukraine (figure 2) has changed the conference organization. Therefore, the XIV International



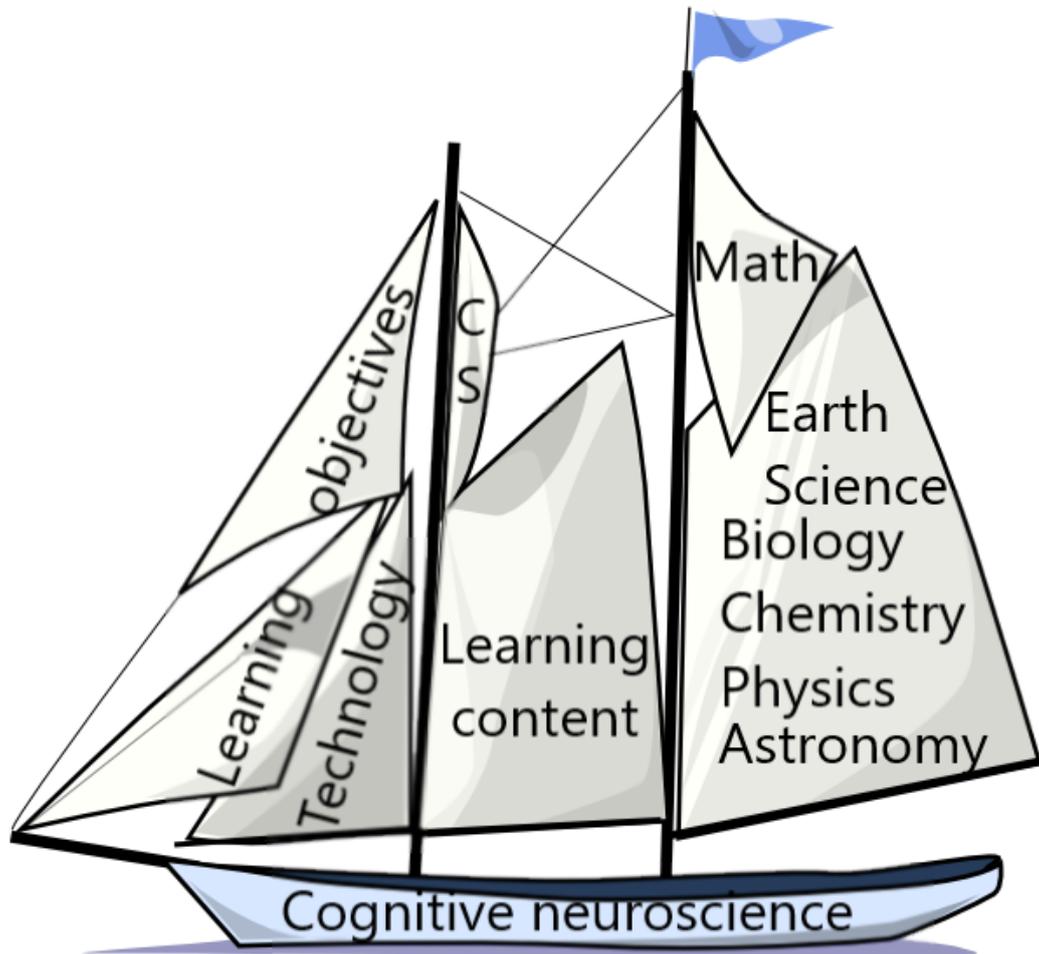


Figure 1. ICon-MaSTEd logo.

Conference on Mathematics, Science and Technology Education (ICon-MaSTEd 2022) took place on 18–20 May 2022 at the Kryvyi Rih State Pedagogical University, Ukraine, both in-person and online.

More than 100 attendees from 7 countries are joined to ICon-MaSTEd 2022 using Zoom. The conference featured invited and contributed talks in a wide number of subject areas: Computer Science and Computer Science Education, Biology and Biology Education, Chemistry Education, Mathematics Education, Physics and Physics Education, Integrated Science Education, Educational Technology and Technology Education.

The presentation slots were defined as follows:

- invites talks (30 min): 20 min presentation, 10 min question answering and discussion,
- other talks (20 min): 15 min presentation and 5 minutes question answering and discussion.

The full program is available at the <https://icon-masted.easyscience.education/2022/> where details of the sessions, usually headed by one or more invited presentations. Video records of talks are available at the *Not So Easy Science* YouTube channel ([https://www.youtube.com/watch?v=oPwFXHZMKV8&list=PL99Jr1\\_pixpN1mTj2h6NU97fH9GQ72qfT](https://www.youtube.com/watch?v=oPwFXHZMKV8&list=PL99Jr1_pixpN1mTj2h6NU97fH9GQ72qfT)).

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### War in Ukraine



**Ukraine war is global concern, Biden tells allies**  
The US president met key Asia allies to discuss China's influence and differences over Russia's invasion.  
1h | Asia



**The Ukrainian city resisting Russian occupation**  
Partisan groups are carrying out attacks on occupying forces in the south-eastern city of Melitopol.  
9h | Europe



**Ukrainian Olympic rower and wife 'so grateful'**  
Dmytro Mikhai and Dasha Kutanova are living with the family of Team GB rower Jack Beaumont.  
1h | Oxford

**LIVE Russia increasing intensity of Donbas operations - UK**  
Russian forces are trying to encircle keys towns in the eastern region of Ukraine, the UK says.  
Europe

- The Ukrainian city resisting Russian occupation
- In fear or in jail: Telling the truth in Russia
- In maps: Russia making small gains in eastern Ukraine



**Can hydrogen ease Germany's need for Russian gas?**  
Why hydrogen might be one route for Germany to move away from dependence on Russian imports.



**Russian diplomat quits over Putin's 'witless' war**  
Boris Bondarev walks out of his job in Geneva, saying he has never been more ashamed of Russia.



**Russian soldier jailed for life for Ukraine war crime**  
The tank commander admitted killing an unarmed civilian at the first war crimes trial since the invasion.

Figure 2. BBC on the War in Ukraine (<https://www.bbc.com/news/world-60525350>).

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### 3. Proceedings structure

- (i) Computer Science and Computer Science Education [4–15]
- (ii) Biology and Biology Education [16–19]
- (iii) Chemistry Education [20–22]
- (iv) Mathematics Education [23–28]
- (v) Physics and Physics Education [29–33]
- (vi) Integrated Science Education [34–38]
- (vii) Educational Technology and Technology Education [39–45]

### 4. Conclusion

XIV installment of ICon-MaSTEd was organized by the Academy of Cognitive and Natural Sciences (<https://acnsi.org>) in collaboration with Kryvyi Rih State Pedagogical University, Ukraine (with support of the rector Prof. Yaroslav Shramko), Kryvyi Rih National University, Ukraine (with support of the rector Prof. Mykola Stupnik), Institute for Digitalisation of Education of the NAES of Ukraine (with support of the director Prof. Valeriy Bykov) and Ben-Gurion University of the Negev, Israel (with support of the rector Prof. Chaim Hames).

We are thankful to all the authors who submitted papers and the delegates for their participation and their interest in ICon-MaSTEd as a platform to share their ideas and innovation. Also, we are also thankful to all the program committee members for providing continuous guidance and efforts taken by peer reviewers contributed to improving the quality of papers provided constructive critical comments, improvements, and corrections to the authors are gratefully appreciated for their contribution to the success of the conference. Moreover, we would like to thank the developers of Morressier, who made it possible for us to use the resources of this excellent and comprehensive conference management system, from the call of papers and inviting reviewers, to handling paper submissions and creating the volume of the conference proceedings. Special thanks to session chairs for their work on the conference and its program, excellent and gratefully appreciated conference support.

We are looking forward to excellent presentations and fruitful discussions, which will broaden our professional horizons. We hope all participants enjoy this conference and meet again in a

more friendly, hilarious, and peaceful further ICon-MaSTEd 2023. The next meeting in the series is the XV International Conference on Mathematics, Science and Technology Education, 2023, Kryvyi Rih, Ukraine (<https://icon-masted.easyscience.education/2023/>).

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