



جامعة قطر
QATAR UNIVERSITY



الصندوق القطري لرعاية البحث العلمي
Qatar National Research Fund
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Q A T A R
MATH DAY
يوم قطر للرياضيات

Thursday, 26 January 2023

Qatar University, College of Education Building (I10)

For Wi-Fi, connect to **QMD2023**

Organizing Committee

- Dr. Muhammad Tahir Mustafa
- Mrs. Latifa Al-Hardan
- Dr. Mohamed Ben Haj Rhouma
- Mr. Yousef Jaradat
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For more information:

<http://www.qu.edu.qa/foundation/QMD/Qatar-Math-Day-3>



For direction: [9FGJ+VM6 Doha](https://www.google.com/maps/place/9FGJ+VM6+Doha)



Time		Events
8:00am – 8:30am	Registration [3 rd Floor in front of C306]	
8:30am – 8:45am	Opening [3 rd Floor Room C306 (Auditorium)]	
8:45am – 9:35am	Keynote 1 [3rd Floor Room C306 (Auditorium)]: Innovative Learning Environments and STEAM education in Finland and beyond <i>Dr. Kristóf Fenyvesi, Finnish Institute for Educational Research, University of Jyväskylä, Finland</i>	
9:35am – 10:25am	Keynote 2 [3rd Floor Room C306 (Auditorium)]: Malaria fueling HIV transmission: A story of a mathematical modeling study in epidemiology <i>Prof. Laith Abu-Raddad, Weill Cornell Medicine-Qatar</i>	
10:25am– 10:40am Coffee Break		
Time	Parallel Seminars	Parallel Workshops
10:40am – 11:10am	T1 - Room B306 Lie subalgebras of $so(3, 1)$ up to conjugacy <i>Ryad Ghanam</i>	W1 – Room E302 Introducing the tool “GeoGebra Classroom.” <i>Houssam Elkasti</i> <i>(Attendee is required to bring laptop/tablet)</i>
	T2 - Room B308 From Calculus to CFD (Computational Fluid Dynamics) <i>JoungDong Kim</i>	W2 – Room B303 Cauchy-Schwartz Inequality a Wonderful Strong Tool <i>Abdelouahed Hamdi</i>
11:10am – 11:40am	T3 - Room B309 On powers of quasihomogeneous Toeplitz operators <i>Issam Louhichi</i>	W3 – Room B304 Grab Their Attention: Lesson Openers for Middle Grades Students <i>Summer Bateiha</i>
	T4 - Room B310 Stability, cycles and forcing between cycles in discrete dynamical systems <i>Ziyad AlSharawi</i>	W4 – Room B305 Building Wakra Tower <i>Kristóf Fenyvesi</i>
		W5 – Room B311 ميسون أبو 360o حمدة (90 minutes)

11:40am -	T5 - Room B306 Additively idempotent semirings ($1 + 1 = 1$) <i>Prof. Jawad Abuhlail</i>	Panel Discussion – Room E309 (جلسة نقاشية) مناهج الرياضيات : الواقع والمأمول
12:10pm	T6 - Room B308 Additive numerical methods for time-dependent partial differential equations. <i>Raed Marabeh</i>	W6 – Room A304 توظيف التكنولوجيا في تعليم وتعلم الرياضيات ألقة السياري
12:10pm - 12:40pm	T8 – Room B310 Characteristics-based LQ-control of Cracking reactor by integral reinforcement <i>Zaineb Mohamed, Jana AbuAhmada</i>	(Attendee is required to bring laptop/tablet) W7 – Room E311 عقلية التساؤل هبة عثمان الحاج صالح
12:40pm – 2:00pm (Lunch & Prayer break)		
2:00pm -	T9 – Room B306 To what extent can we raise the level of critical thinking among our students in Foundation Mathematics Courses? <i>Mahmoud Syam</i>	T10 – Room B308 Mathematical modeling of the SARS-CoV-2 epidemic: Insights from Qatar's experience. <i>Houssein Ayoub</i>
2:25pm -	T11 – Room B306 Implementation of Various Learning Methodologies towards Qatar University Excellence Themes <i>Sammani Abdullahi</i>	T12 – Room B308 Mathematical modeling of COVID-19 epidemic and estimating key epidemiological metrics <i>Jana AbuAhmada, Zaineb Mohamed</i>
2:50pm -	T13 – Room B306 أهمية التعلم الفردي في رفع التحصيل الأكاديمي <i>ساري بعثي</i>	T14 – Room B308 The Actuary in the Pandemic <i>Francois Boit</i>
3:15pm -	T15 – Room B306 في تنمية مهارات التفكير الإبداعي "TRIZ-تريز" مبادئ نظرية <i>محمد طه</i>	T16 – Room B308 Introduction to the L_p integrability of the non-cutoff Boltzmann equation (with connexion to other global operators) <i>Ricardo Alonso</i>
3:40pm -	T17 – Room B306 Experiential Learning Activities to Engage Students and Develop Their Skills <i>Mohamed Chabi</i>	T18 – Room B308 Some Notes on Variable Selection <i>Ayman Alzaatreh</i>
4:05pm		

Keynotes Speaker Bibliography

Dr. Kristóf Fenyvesi



Kristóf Fenyvesi, Ph.D. (b. 1979) is a researcher of STEAM (Science, Technology, Engineering, Arts and Mathematics), trans- and multidisciplinary learning and contemporary cultural studies at the Finnish Institute for Educational Research, University of Jyväskylä, Finland (<https://ktl.jyu.fi/en>). He is a member of the Research Group for Innovative Learning Environments and the Research Group for Education, Assessment & Learning.

Fenyvesi is Community Events Director of the Bridges Organization (www.bridgesmathart.org), the world's largest education community for the mathematics and the arts. He has been the editor of the annual Bridges conference's Workshop Paper track and coordinator of the Bridges Public Day (www.familyday.hu) since 2011. In 2014 he became a full member of the European Academy of Sciences and Arts. Since 2016, he has been member of the European Mathematical Society's Committee for Raising Public Awareness. Between 2013-2017 he served as the chief executive officer of the International Symmetry Association (www.symmetry.hu) and in 2008 he launched Experience Workshop—Global STEAM Network (www.experienceworkshop.org). He was invited by the European Commission to serve as the STEAM expert evaluator of various H2020 and Erasmus+ projects.

Prof. Laith Abu-Raddad



Laith Abu-Raddad is a Professor of Healthcare Policy and Research at **Weill Cornell Medicine – Qatar**, Cornell University, and Adjunct Professor of Epidemiology and Biostatistics at the College of Health & Life Sciences, HBKU. Laith's expertise is in infectious disease epidemiology with emphasis on quantitative methods including mathematical modeling and biostatistics. He has led several high-impact studies at international and regional levels. He has published more than 200 pieces of work with a citation h-index of 55. His scientific research has been published in journals such as Science, The Lancet, PLOS Medicine, PNAS, Clinical Infectious Diseases, Hepatology, BMC Medicine, Science Translational Medicine and AIDS. He is or has been the principal investigator of several projects funded by various

funding agencies and has acted as an expert advisor or a consultant for several international organizations. His research work has been key in the formulation of public health policy at the regional and international levels. Findings of his research studies have received coverage in international media such as at Al Jazeera, The New York Times, BBC and The Economist.

QATAR MATH DAY 2023 – ABSTRACT [KEYNOTES]	ROOM/TARGET AUDIENCE
<p>KEYNOTE 1:</p> <p>Creativity and Innovation in Mathematics Learning: STEAM integration in Finland and beyond</p> <p><i>Dr. Kristóf Fenyvesi , University of Jyväskylä, Finland</i></p> <p>The presentation is focusing on the role of creativity and innovation in the mathematics learning process, based on projects and publications by our Research Group of Innovative Learning Environments (https://www.jyu.fi/it/ile). We will explore pedagogical approaches based on the integration of STEAM, i.e., Science, Technology, Engineering, Arts, Mathematics. Discussing issues related to creativity, innovation, and STEAM learning, we will address the role of informal methods in formal education, especially in the area of skills and competence development. The presentation includes several practical examples based on the Experience Workshop STEAM Network (www.experienceworkshop.org), such as using 3D-printers, robotics, Augmented Reality in the mathematics classroom. We will explore the potentials of mathematics and art combinations, including projects rediscovering connections between Islamic design and mathematics learning.</p>	<p><i>Room: C306</i></p> <p><i>Target Audience:</i> General</p> <p><i>Capacity: 300</i></p>
<p>KEYNOTE 2:</p> <p>Malaria fueling HIV transmission: A story of a mathematical modeling study in epidemiology</p> <p><i>Prof. Laith Abu-Raddad, Weill Cornell Medicine – Qatar & HBKU, Qatar</i></p> <p>This presentation will describe how mathematical modeling was used to answer an important research question in epidemiology of infectious diseases leading to a major scientific accomplishment. Unexpectedly, malaria was found to have contributed to some of the HIV transmission that occurred in sub-Saharan Africa, the region most affected by the HIV pandemic.</p>	<p><i>Room: C306</i></p> <p><i>Target Audience:</i> General</p> <p><i>Capacity: 300</i></p>

QATAR MATH DAY 2023 – ABSTRACT [SEMINARS]	ROOM/TARGET AUDIENCE
<p>SEMINAR T1:</p> <p>Lie subalgebras of $so(3, 1)$ up to conjugacy</p> <p><i>Ryad Ghanam, VCU Qatar, QA</i></p> <p>In this talk, I will present our results about finding all Lie subalgebras of $so(3,1)$ up to conjugacy. I will show the techniques that we have used to obtain this classification. I will also present some applications to solving differential equations and obtaining non-equivalent solutions</p>	<p><i>Room: B306</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T2:</p> <p>From Calculus to CFD (Computational Fluid Dynamics)</p> <p><i>JoungDong Kim, TAMU Qatar, QA</i></p> <p>In this talk, we shall present sufficient conditions for the existence of powers of quasihomogeneous Toeplitz operators defined on the Bergman space of the unit disk of the complex plane. A large class of examples shall be provided to illustrate our results. To our best knowledge those examples are not covered by the current literature. This is a joint work with Aissa Bouhali and Zohra Bendaoud from Algeria.</p>	<p><i>Room: B308</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T3:</p> <p>On powers of quasihomogeneous Toeplitz operators</p> <p><i>Issam Louhichi, American University of Sharjah, UAE</i></p> <p>In this talk, we shall present sufficient conditions for the existence of powers of quasihomogeneous Toeplitz operators defined on the Bergman space of the unit disk of the complex plane. A large class of examples shall be provided to illustrate our results. To our best knowledge those examples are not covered by the current literature. This is a joint work with Aissa Bouhali and Zohra Bendaoud from Algeria.</p>	<p><i>Room: B309</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T4:</p> <p>Stability, cycles and forcing between cycles in discrete dynamical systems</p> <p><i>Ziyad AlSharawi, American University of Sharjah, UAE</i></p> <p>In a discrete dynamical system $X_{n+1}=F(X_n)$, fixed points of F are known as equilibrium solutions, and fixed points of F^k that are not fixed points of F^j for any $j < k$ are forming periodic solutions, which we refer to as k-cycles. Cycles, their stability and forcing between them is an old problem but continues to be a research area of interest due to the applications in different fields. In this talk, we begin by talking about cycles of one dimensional maps $x_{n+1}=f(x_n)$, then we move on to give some recent findings about the dynamics of two-dimensional maps with mixed monotonicity.</p>	<p><i>Room: B310</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>

QATAR MATH DAY 2023 – ABSTRACT [SEMINARS]	ROOM/TARGET AUDIENCE
<p>SEMINAR T5:</p> <p>Additively idempotent semirings ($1 + 1 = 1$)</p> <p><i>Jawad Abuhlail, King Fahd University of Petroleum and Minerals, SA</i></p> <p>Semirings are (roughly) rings not necessarily with subtraction. Since the sixties of the last century, semirings were shown to have significant applications in several areas as Automata Theory, Theoretical Computer Science, many classical areas of mathematics (e.g., Golan 1992, 1999). Recently, semirings played an important role in several emerging areas of research like Idempotent Analysis, Tropical Geometry, and many aspects of modern Mathematics and Mathematical Physics. Additively idempotent semirings are those satisfying $1 + 1 = 1$. We give a brief survey on such semirings with many examples. We demonstrate theorems classifying all simple additively idempotent semirings, i.e., those with no non-trivial non-universal congruences.</p>	<p><i>Room: B306</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T6:</p> <p>Additive numerical methods for time-dependent partial differential equations.</p> <p><i>Raed Marabeh, Qatar University, QA</i></p> <p>For many systems of differential equations that model problems in science and engineering, the right hand side has natural split into sum of two or more parts. For example, diffusion, reaction and advection equations. Implicit-explicit (IMEX) methods treat these three parts with two different numerical methods where stiff part is integrated by implicit numerical method and the non-stiff part is integrated by explicit numerical methods.</p> <p>In this talk, I will give a brief introduction to numerical analysis, I will give an overview of the additive numerical splitting methods for solving time-dependent partial differential equations, and I will present a recent approach in solving the differential equations using 3-additive numerical splitting methods. This covers the construction of the additive numerical methods, the stability analysis and order of convergence of the derived methods, and some numerical experiments that tests the performance of the additive splitting methods.</p>	<p><i>Room: B308</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>

QATAR MATH DAY 2023 – ABSTRACT [SEMINARS]	ROOM/TARGET AUDIENCE
<p>SEMINAR T8:</p> <p>Characteristics-based LQ-control of Cracking reactor by integral reinforcement</p> <p><i>Jana AbuAhmada and Zaineb Mohamed, Qatar University, QA</i></p> <p>The linear quadratic control system of hyperbolic first order partial differential equations (PDEs) are presented. The aim of this research is to control chemical reactions. This is achieved by converting the PDEs system to ordinary differential equations (ODEs) using the method of characteristics to reduce the system to control it by using the integral reinforcement learning. The designed controller is applied to a catalytic cracking reactor.</p>	<p><i>Room: B310</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T9:</p> <p>To what extent can we raise the level of critical thinking among our students in Foundation Mathematics Courses?</p> <p><i>Mahmoud Syam, Qatar University, QA</i></p> <p>When some educators talk about critical thinking, I feel everyone has his/her own definition. Simply, critical thinking is about improving thinking by analyzing, assessing, and reconstructing how we think. There is a strong relation between the definition of critical thinking and Bloom’s Taxonomy cognitive levels, but there are some questions to be answered. How can teachers improve critical thinking skills in Foundation Math Courses to be reflected on their students? Is there enough time for teachers to do so? What about teaching and learning activities and assessments? What about students’ background? In this presentation, I will present my point of view on this issue as a mathematics teacher, not as an education specialist, then I will be happy to hear the audience’s opinions on this subject.</p>	<p><i>Room: B306</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T10:</p> <p>Mathematical modeling of the SARS-CoV-2 epidemic: Insights from Qatar's experience.</p> <p><i>Houssein Ayoub, Qatar University, QA</i></p> <p>Mathematical modeling constitutes an important tool for planning robust responses to epidemics. This research was conducted to guide the Qatari national response to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic. In this talk, I will present an age and meta-population structured deterministic mathematical model that was constructed to describe SARS-CoV-2 transmission dynamics and disease progression throughout the population. This model was behind the scenes of Qatar's response to the pandemic that investigated the epidemic’s time-course, forecasted healthcare needs, predicted the impact of social and physical distancing restrictions. The model was also used to demonstrate the applicability of the test-negative, case-control study design in deriving the effectiveness of prior infection in preventing reinfection by novel variants of concern.</p>	<p><i>Room: B308</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>

QATAR MATH DAY 2023 – ABSTRACT [SEMINARS]	ROOM/TARGET AUDIENCE
<p>SEMINAR T11:</p> <p>Implementation of Various Learning Methodologies towards Qatar University Excellence Themes</p> <p><i>Sammani Abdullahi, Qatar University, QA</i></p> <p>With the emerging transformation in education as the pandemic loosens its grip, the question remains whether education will return to a "business as usual" mindset focusing on traditional instructional norms or adopt innovative methodologies that broaden its reach and improve its effectiveness. This session will present insights into the effective use of various teaching and learning methods in alignment with Qatar University's educational excellence themes, which have already improved Foundation Program students' Math performance and quality of education. Additionally, it will focus on how these learning methodologies were effectively implemented by the Foundation Program, Qatar University, and provide best practices that could be utilized in future instruction.</p>	<p><i>Room: B306</i></p> <p><i>Target Audience:</i> General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T12:</p> <p>Mathematical modeling of COVID-19 epidemic and estimating key epidemiological metrics</p> <p><i>Jana AbuAhmada and Zaineb Mohamed, Qatar University, QA</i></p> <p>The transmission dynamics of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and associated Coronavirus Disease 2019 (COVID-2019) is rapidly evolving globally. In this talk, we present the mathematical model used to estimate key epidemiologic metrics of COVID-19 epidemic. A deterministic mathematical model, based on the traditional SEIR model, was adapted to describe the transmission dynamics of SARS-CoV-2 in the population. The model was fitted to the standardized and centralized databases of SARS-CoV-2 in Qatar. Then, we applied and calibrated the model to Iraq population. In this talk, we present the developed model and showed the importance of some parameters. In addition, the impact of non-pharmaceutical interventions was also investigated. This talk highlights the role of mathematical modeling as an important tool for planning robust responses to epidemics.</p>	<p><i>Room: B308</i></p> <p><i>Target Audience:</i> General</p> <p><i>Capacity: 30</i></p>

QATAR MATH DAY 2023 – ABSTRACT [SEMINARS]	ROOM/TARGET AUDIENCE
<p style="text-align: right;">T13 ندوة</p> <p style="text-align: center;">أهمية التعلم الفردي في رفع التحصيل الأكاديمي <i>ساري بعثي, وزارة التربية والتعليم والتعليم العالي, قطر</i></p> <p>تقدم هذه الدراسة إطاراً عاماً لتصميم دروس الرياضيات باعتماد برنامج مقترح من الاستراتيجيات المعرفية وفوق المعرفية يستند إلى التعلم الفردي بهدف تنمية مهارة التعلم الذاتي لدى الطلاب في صفوف الرياضيات، مما يزيد من ثقة الطلاب بأنفسهم كمتعلمين مستقلين قادرين على التعلم بشكل مستمر، كما يساعدهم في رفع توقعاتهم بقدرتهم على تحقيق النجاح في حل المشكلات، وتطبيق ما تعلموه في حياتهم العملية، وصولاً إلى تعلم ذو معنى.</p> <p>وأهم ما يميز هذا البرنامج بأنه:</p> <ol style="list-style-type: none"> 1. يعمل كوحدة واحدة من خلال الدمج بين الإستراتيجيات ك لها أو أجزاء منها. 2. يمكن توظيفه في أي جزء من أجزاء الدرس، (التهيئة، التقديم، الغلق). 3. سهل الاستعمال بشكل منفرد أو بعد دمج الاستراتيجيات. 4. يعتمد على استراتيجياته واضحة ويمكن تطبيقها بسهولة. 5. يعتمد على استراتيجيات تلقى قبولاً ورواجاً عند الطلبة. 6. يشجع على التفاوض الاجتماعي. 7. يشجع على توفير بيئة آمنة ومحفزة. 8. يساعد على مراعاة أنماط التعلم المختلفة في الغرفة الصفية. 	<p>Room: B306</p> <p>Target Audience: General</p> <p>Capacity: 30</p>
<p>SEMINAR T14:</p> <p>The Actuary in the Pandemic <i>Francois Boit, QIC Group, QA</i></p> <p>The Covid-19 pandemic generated uncertainties for Life insurers, Medical Costs Reimbursement insurers and, perhaps more surprisingly, Motor & Fire insurers. The presentation will describe approaches to quantifying associated risks and opportunities.</p>	<p>Room: B308</p> <p>Target Audience: General</p> <p>Capacity: 30</p>
<p style="text-align: right;">T15 ندوة</p> <p style="text-align: center;">مبادئ نظرية "تريز-TRIZ" في تنمية مهارات التفكير الإبداعي <i>محمد طه</i></p> <p>يقوم البرنامج على استخدام بعض مبادئ نظرية تريز (التقسيم-العكس-الدمج والشمولية-استمرار العمل المفيد-التجزئة) لتنمية مهارات التفكير الإبداعي (المرونة-الطلاقة-الأصالة-التفاصيل) في وحدة الدوال الأسية واللوغاريتمات لطلاب الصف الحادي عشر المتقدم من خلال 10 جلسات تدريبية جلستان بعد كل درس من الدروس الخمسة للوحدة (الدوال الأسية-اللوغاريتمات-الدوال اللوغاريتمية-خصائص اللوغاريتمات-المعادلات الأسية واللوغاريتمية) من خلال تقسيم الطلاب إلى خمس مجموعات غير متجانسة وتنفيذ الأنشطة المطلوبة منهم بعد المناقشة واختيار الحل الأمثل للمشكلة</p>	<p>Room: B306</p> <p>Target Audience: General</p> <p>Capacity: 30</p>

QATAR MATH DAY 2023 – ABSTRACT [SEMINARS]	ROOM/TARGET AUDIENCE
<p>SEMINAR T16:</p> <p>Introduction to the L_p integrability of the non-cutoff Boltzmann equation (with connexion to other global operators)</p> <p><i>Ricardo Alonso, TAMU Qatar, QA</i></p> <p>In this talk we discuss different technical elements to obtain a priori estimates for L_p norms of weak solutions to non-cutoff kinetic equations using as example the homogeneous/inhomogeneous Boltzmann equation. Rather than a detailed-proof talk, we point out difficulties and give some intuition related to the main steps of the strategy. In particular, we discuss the localization process of Boltzmann type operators which cover an ample range of operators such as the fractional Laplacian.</p>	<p><i>Room: B308</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T17:</p> <p>Experiential Learning Activities to Engage Students and Develop Their Skills</p> <p><i>Mohamed Chabi, Qatar University, QA</i></p> <p>Experiential learning is an active learning process in which students "learn by doing" and by reflecting on the experience. Through hands-on learning, math activities aim to improve students' ability to think mathematically, solve problems in different ways, and enhance critical thinking and reasoning.</p> <p>The method was aligned with QU's aim for Excellence Themes in teaching and learning. By facilitating these activities during lab hours where students engage in a group setting to solve applied problems, educators are able to create a learning environment that encourages active participation, allows students to use constructive reasoning to make viable arguments, and applies mathematical principles in real-world situations.</p>	<p><i>Room: B306</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>SEMINAR T18:</p> <p>Some notes on Variables Selection</p> <p><i>Aynam Alzaatreh</i></p> <p>Variable selection has become a critical step in most data mining applications to mitigate the curse of dimensionality in high-dimensional datasets. Without direct input from the target variable, filter methods evaluate the importance of features as a pre-processing operation to the learning algorithm and select the best feature subsets through some information metrics. Filters are known to be more computationally efficient than wrapper and embedded methods. In this talk, several variable selection techniques will be discussed. In particular, the relative belief ratio will be used to discriminate between two groups in a binary classification problem setting. Several benchmark data sets are used to demonstrate the applicability of the proposed method.</p>	<p><i>Room: B308</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>

QATAR MATH DAY 2023 – ABSTRACT [WORKSHOPS]	ROOM/TARGET AUDIENCE
<p>WORKSHOP W1:</p> <p>Introducing the tool “GeoGebra Classroom.</p> <p><i>Houssam Elkasti, Qatar University, QA</i></p> <p>Research has shown that students who discover concepts by themselves tend to retain them for a more extended time; excellence in teaching urges us to teach in a manner that is:</p> <ul style="list-style-type: none"> • more student-centered, • differentiated, • digitally enhanced, • explorative way. <p>GeoGebra classroom is a tool that can be used to ensure students explore mathematical concepts and teachers can monitor their work individually. In addition, the GeoGebra classroom is time effective and has the option of formative feedback, among other essential features.</p> <p>In this session, I will introduce how to use this instrument with the help of some examples, and attendees will have the chance the use and apply it.</p>	<p><i>Room: E302</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>WORKSHOP W2:</p> <p>Cauchy-Schwartz Inequality a Wonderful Strong Tool</p> <p><i>Abdelouahed Hamdi, Qatar University, QA</i></p> <p>In this workshop, we will go through several situations where Cauchy-Schwartz inequality is applied to solve some hard problems. Also, we point out here the simplicity of this nice inequality and its usefulness in many topics of mathematics.</p>	<p><i>Room: B303</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>
<p>WORKSHOP W3:</p> <p>Grab Their Attention: Lesson Openers for Middle Grades Students</p> <p><i>Summer Bateiha, VCU Qatar, QA</i></p> <p>Lesson openers are short activities that occur within the first 5 to 10 minutes of class. They are typically used to help students recall previously encountered material, introduce new material, or develop skill fluency. These activities are a great way to grab students' attention and focus their thinking. Selecting strong openers can help students make greater learning gains. In this workshop, I will present a variety of classroom openers for middle grades students. They will include topics such as proportional reasoning (fractions, decimals, percents), geometry, and algebra.</p>	<p><i>Room: B304</i></p> <p><i>Target Audience:</i></p> <p>General</p> <p><i>Capacity: 30</i></p>

QATAR MATH DAY 2023 – ABSTRACT [WORKSHOPS]	ROOM/TARGET AUDIENCE
<p>WORKSHOP W4:</p> <p>Building Wakra Tower</p> <p><i>Kristóf Fenyvesi , University of Jyväskylä, Finland</i></p> <p>Warka Water is a social design project by the Italian architect, Arturo Vittori, to provide help to Ethiopia’s population in its daily challenges in their quest for drinking water. Due to its unique, geometric structure, the Warka Water bamboo tower is able to harvest potable water from condensation in the air (collect rain, harvest fog and dew).</p> <p>The tower’s triangulated split bamboo frame holds a mesh, which during wet conditions collects water droplets. Droplets flow downward by gravity and drip into a collector, which is channeled into a storage tank located at the center of the tower’s base. There is also a canopy installed on the tower, which not only provides water, as the resource for life, but also serves as a social place for villagers, who owns and operates the tower. Members of the local community can meet and have public discussions under the shade of the canopy.</p>	<p>Room: B305</p> <p>Target Audience:</p> <p>General</p> <p>Capacity: 30</p>
<p style="text-align: right;">ورشة عمل W5</p> <p style="text-align: right;">360°</p> <p style="text-align: right;"><i>ميسون أبو حمدة ، وزارة التربية والتعليم والتعليم العالي، قطر</i></p> <p style="text-align: right;">ورشة تدريبية حول أنماط التعلم واستراتيجيات تعليمها.</p>	<p>Room: B311</p> <p>Target Audience:</p> <p>المرحلتين الإعدادية والثانوية، ويفضل من المعلمين الجدد.</p> <p>Capacity: 60</p>
<p style="text-align: right;">جلسة نقاشية</p> <p style="text-align: right;">: الواقع والمأمول) ، وسيشارك في النقاش مجموعة من الخبراء في تطبيق مناهج stem ، وهم : مدير الجلسة: حاتم الضاوي</p> <p style="text-align: right;">المتحدثون: منحنى stem في مناهج الرياضيات : الواقع والمأمول</p> <p style="text-align: right;">يدير أ. حاتم الضاوي من وزارة التربية والتعليم والتعليم العالي جلسة نقاشية بعنوان (منحنى stem في مناهج الرياضيات</p> <ul style="list-style-type: none"> • <i>خليفة الهزاع : العميد المساعد للعلوم والعلوم التطبيقية – جامعة قطر</i> • <i>الاستاذ أحمد منصور مدرس مهارات ستيم أكاديمية قطر للعلوم والتكنولوجيا مؤسسة قطر</i> • <i>كريستوف فينييفسي ، جامعة جيفاسكيلا – فنلندا</i> • <i>راني التوم : نائب المدير للشؤون الأكاديمية في مدرسة قطر للعلوم والتكنولوجيا</i> <p>تلعب الرياضيات دورا مهما في معظم المجالات العلمية الأخرى، وطريقة التدريس مهمة كالمناهج نفسه وهي العامل الثاني في حصول التعلم الحق، والمنهج مهما كان غنيا لا يمكن أن يفيد إلا إذا تضمن طريقة تدريس تستطيع أن تؤثر في شخصية الطالب وتنمي مهاراته وتطور قدراته.</p> <p>وعلى الرغم من تعدد طرق التدريس إلا أن منحنى التكامل بين العلوم والتكنولوجيا والهندسة والرياضيات من أهمها حيث أصبح هذا المصطلح جزءا من المفردات التعليمية في العصر الحالي.</p> <p>سنناقش في هذه الجلسة موقع منحنى في STEM المناهج الدراسية في مختلف المراحل الدراسية ودوره في إعداد الطلبة لوظائف القرن الحادي والعشرون وكذلك المعوقات التي تحول دون تطبيق منحنى STEM في تدريس الرياضيات .</p>	<p>Room: E306</p> <p>Target Audience:</p> <p>الحضور عام</p> <p>Capacity: 60</p>

QATAR MATH DAY 2023 – ABSTRACT [WORKSHOPS]	ROOM/TARGET AUDIENCE
<p style="text-align: right;">ورشة عمل W6</p> <p style="text-align: center;">توظيف التكنولوجيا في تعليم وتعلم الرياضيات ألفه السيارى وزارة التربية والتعليم والتعليم العالى، قطر</p> <p>سنناقش في هذه الجلسة كيفية توظيف المصادر التكنولوجية المساندة للمناهج الدراسية في المرحلة الثانوية (geogebra – Mathematics HL Core demos-phet simulation) لإثراء الدرس و المساعدة على تحقيق الأهداف و الاستخدام الأمثل لمراعاة الفروق الفردية بين الطلبة</p> <p style="text-align: right;">* أجهزة لابتوب أو لوحية</p>	<p>Room: A304</p> <p>Target Audience: الحضور عام</p> <p>Capacity: 30</p>
<p style="text-align: right;">ورشة عمل W7</p> <p style="text-align: center;">عقلية التساؤل هبة عثمان الحاج صال وزارة التربية والتعليم والتعليم العالى، قطر ح</p> <p>في عصر الانترنت اصبح السؤال الجيد اكثر أهمية من الإجابة , فكبسة زر باستعمال محرك البحث تحصل على الاف المعلومات</p> <p>لذلك ان تكون معلما في هذا الزمن يجب ان تعمل يوميا على تدريب نفسك لإعداد جيل لزمان غير زماننا , واقوى تحول يمكنك اجراءه لتحقيق ذلك تبني ثقافة التساؤل في كافة الممارسات أي تبدء التعلم بسؤال سواء لك كمعلم او للمتعلمين</p> <p style="text-align: right;">(الأسئلة تزرع البذور من اجل البحث المتعمق)</p>	<p>Room: E311</p> <p>Target Audience: الحضور عام</p> <p>Capacity: 60</p>