

## PRESS RELEASE

### Arts that Count in *A Game of Numbers!*

**Singapore's First Ever Mathematics-themed Arts Festival to be held at National University of Singapore.**

*Singapore, Wednesday, 16 Jan 2019*

Over 2 weekends in March, NUS Centre For the Arts (CFA) will present *A Game of Numbers*, a festival of dance, music, theatre and film with the theme of mathematics, believed to be the first ever mathematics-themed arts festival in Singapore. This is also the first time that a Singapore group has obtained the rights to stage Complicité UK's award-winning work, *A Disappearing Number*. More than 250 local and international arts practitioners, student artists and faculty members will present a unique spectrum of events which focus on the aesthetics of mathematics and the shared values between the arts and mathematics.

*A Game of Numbers* is inspired by the writings of G.H. Hardy, an eminent mathematician who wrote "*A mathematician, like a painter or a poet is a maker of patterns.*" and frequently alluded to the parallels between Mathematics and the Arts.

The Festival is a collaboration between NUS Centre For the Arts and the Department of Mathematics in the Faculty of Science. The Department was among the first departments when Raffles College was officially opened in 1929 and celebrates its 90<sup>th</sup> Anniversary this year. It is also significant that one of the first lecturers in the department was Professor Alexander Oppenheim who was a student of G.H. Hardy. Said Professor Zhu Chengbo, Head of Department of Mathematics, "We are indeed honoured to work with CFA as part of our 90<sup>th</sup> Anniversary celebrations to deepen appreciation and broaden interest in the area of mathematics through its connection to the arts. Our professors are recognized for their work in pure and applied mathematics. Some with a deep personal interest in the arts will be giving short talks to the artists to clarify concepts in the work they are developing for the festival."

Said Ms Sharon Tan, Director for CFA, "This collaboration between the Department of Mathematics is a continuation of CFA's efforts to integrate the arts into different aspects of learning and University life. The Festival gives us the opportunity to expose the students in our arts groups who come from various schools to areas of study they would otherwise not have access to and this broadens their minds through creative thinking. We are grateful to the Department of Mathematics for their keen involvement in the Festival through consultations with the students and artistic directors and as moderators of the panel discussions. We look forward to seeing the fruits of this collaboration."

The Festival will open with Complicité UK's *A Disappearing Number*, directed by highly acclaimed theatre director Edith Podesta. This is the first time that a Singapore group has obtained the rights to stage Complicité's work, a world-renowned theatre company known for

its innovation. Winner of the 2008 Olivier Award for Best New Play, ***A Disappearing Number*** will tell the true story of the extraordinary collaboration between Cambridge professor G.H. Hardy and self-taught mathematician Srinivasa Ramanujan, who made some of the most significant mathematical discoveries of the 20th century. The extraordinary work of visual and physical theatre will feature professional actors Remesh Panicker (*The Merchant of Venice*), Koh Wan Ching (*Mortal Sole*) and Pavan J Singh (*Chinatown Crossings*) alongside the creative talents of Brian Gothong Tan, Steve Kwek and Teo Wee Boon with students from NUS Stage.

The 14<sup>th</sup> NUS Arts Festival: *A Game of Numbers* will also present ***BEHALF***, a danced dialogue between Taiwanese dancer Chen Wu-kang and Thai dancer Pichet Klunchun. The dance evolved from a series of conversations about their cultural backgrounds to exploring the relationship between traditional and contemporary dance and between students and their teachers in an effort to define our selves in the form of parts and fractions. A series of dance solos – a form that exists in almost all traditional dance – results in a mutual dialogue, which then moves on to involve a local musician and the audience.

NUS Chinese Orchestra under the baton of Moses Gay will bring the Festival to a rousing climax with ***The Art Of War*** 《战数》. The three works, *The Great Wall Capriccio* 《长城随想曲》, *Yellow River Concerto* 《黄河钢琴协奏曲》 and a revisiting of the *Symphonic Poem: The Battle of Red Cliffs* 《交响诗：赤壁》 reflect how China's historic defence efforts are rooted in mathematical concepts that have evolved from the time of Sun Tzu that continue to be expressed as game theory today.

The core festival is augmented with ***Sine of the Times***, a math rock music celebration featuring LITE, hailed as one of Japan's top instrumental rock acts, Singapore band, Forests as well as a line-up of free events such as critically acclaimed films and panel discussions.

Said Ms Mary Loh, Festival Director, NUS Arts Festival, "The notion of beauty in mathematics is quite alien to non-Mathematics students who have grown up fearing math or thinking that we are bad at it. Developing an appreciation of math is critical in our times with the rise of data analytics, FinTech and cryptocurrency. When our students begin to explore this theme of beauty as a shared value for both the arts and mathematics, they are made more aware of the commonalities between the disciplines; Mathematics is not coldly rational and logical but has a deeper interest in humanity and this viewpoint gives them access for greater exposure without fear."

To further discourse and understanding on the parallels between art and mathematics, a series of free talks and panel discussions have been planned. **Critical Conversations** will open on 17<sup>th</sup> January with "The Heart of Mathematics", featuring two advocates for humanitarian issues – Kok Heng Luen, Artistic Director of Drama Box and former Nominated Member of Parliament, as well as Dr Pablo Suarez, Artist-in-Residence, NUS-Lloyd's Register Foundation Institute for the Public Understanding of Risk. They will share how the world of mathematics has informed their aesthetics and the work they do in raising awareness about critical issues facing the world today. Moderated by Professor Victor Tan, *Critical Conversations* will also feature Cultural Medallion recipient Mrs Santha Bhaskar, Edith Podesta, Assistant Professor Miguel Escobar Varela and Emeritus Professor Louis Chen in February and March. Free events for the festival include the *Critical Conversations* series and exclusive screenings of award-winning films such as ***The Imitation Game*** starring Benedict Cumberbatch and ***The Man Who Knew Infinity*** starring Jeremy Irons and Dev Patel.

Tickets for **NUS Arts Festival: A Game of Numbers** priced at \$15 for students and \$25 for adults are available from 16<sup>th</sup> January at [www.nusartsfestival.com](http://www.nusartsfestival.com)

To register for the free events, please refer to the individual show titles at our website [www.nusartsfestival.com](http://www.nusartsfestival.com)

The 14th NUS Arts Festival is generously supported by Japanese Chamber of Commerce and Industry (JCCI), Shaw Foundation and Lee Foundation.

### **Schedule of events**

Show details are included as Annex 1.

Visit [www.nusartsfestival.com](http://www.nusartsfestival.com) for more information.

For media enquiries, please contact:

### **Thomas HARPER**

Marketing Communications (Media)  
NUS Centre For the Arts  
DID: +65 8622 4694  
Email: [t.harper@nus.edu.sg](mailto:t.harper@nus.edu.sg)

### **Michelle CHANG**

Marketing Communications  
NUS Centre For the Arts  
DID: + 65 9831 5701  
Email: [michelle.chang@nus.edu.sg](mailto:michelle.chang@nus.edu.sg)

### **About NUS Centre For the Arts (CFA)**

NUS Centre For the Arts is a vibrant space for the appreciation of the arts and nurturing of the creative and inquiring spirit. We support student engagement with the arts and the integration of the arts into the life of the University.

CFA includes the NUS Museum, NUS Baba House and a Talent and Development arm that oversees 22 student arts excellence groups. Through our myriad of programmes, practices, exhibitions, workshops and outreach, such as NUS Arts Festival and the ExxonMobil Campus Concerts, we enrich the university experience and contribute to the building of knowledge and transformation of students.

We also manage facilities such as the University Cultural Centre, with its 1700-seat Hall and 425-seat Theatre, and rehearsal spaces in Runme Shaw CFA Studios and University Town.

For more information, visit [cfa.nus.edu.sg](http://cfa.nus.edu.sg)

### **About National University of Singapore (NUS)**

A leading global university centred in Asia, the National University of Singapore is Singapore's flagship university, which offers a global approach to education and research, with a focus on Asian perspectives and expertise.

NUS has 17 faculties and schools across three campuses. Its transformative education includes a broad-based curriculum underscored by multidisciplinary courses and cross-faculty enrichment. Over 38,000 students from 100 countries enrich the community with their diverse social and cultural perspectives. NUS also strives to create a supportive and innovative environment to promote creative enterprise within its community.

NUS takes an integrated and multidisciplinary approach to research, working with partners from industry, government and academia, to address crucial and complex issues relevant to Asia and the world. Researchers in NUS' Schools and Faculties, 30 university-level research institutes and centres, and Research Centres of Excellence cover a wide range of themes including: energy, environmental and urban sustainability; treatment and prevention of diseases common among Asians; active ageing; advanced materials; risk management and resilience of financial systems. The University's latest research focus is to use data science, operations research and cybersecurity to support Singapore's Smart Nation initiative.

For more information on NUS, please visit [www.nus.edu.sg](http://www.nus.edu.sg)

## Annex 1: Show Details

### [A Disappearing Number](#) (Opening Show)

NUS Stage

Friday, 15 March, 8pm, UCC Hall



NUS Centre For the Arts unveils a new staging of Complicité UK's exquisite, internationally acclaimed play about love, math, and how the past and future connect.

In 1913, a clerk in rural India named Srinivasa Ramanujan sends a letter to famed mathematician G. H. Hardy, filled with astonishing mathematical theorems. In the present, a math professor and a businessman fall in love. Winner of the 2007 Critics' Circle Theatre, Evening Standard, and Laurence Olivier awards for Best New Play, this staging is directed by the award-winning Edith Podesta (*Dark Room*, *Bitch: The Origin of the Female Species*, *The Golden Record*). *A Disappearing Number* blends the beauty of everyday relationships with the mysticism of the cosmos in a fascinating whirlwind of vignettes spanning history and time.

*A Disappearing Number* by Complicité. Originally conceived and directed by Simon McBurney. Devised by the original company. Performance made possible by kind permission of Complicité, London, [complicite.org](http://complicite.org)

Edith Podesta will also be part of a panel '*Rhythms and Patterns in Performance*' on 28 Feb at NUS Museum.

#### **Edith Podesta (Director)**



Edith is an Australian born, Singapore based performer, director, choreographer, playwright, and lecturer. Over the past 15 years, she has acted in over 20 theatre and television productions, and scripted, devised, choreographed and directed over 40 theatrical productions. For eight years Edith

held the position of Programme Leader of the BA (Hons) Acting course at LASALLE College of the Arts, Singapore. Her creative work is primarily concerned with identity, human rights, education, animal welfare, and personal and social change.

### [The Art of War 《战数》](#) (Closing Show)

**NUS Chinese Orchestra**

**Saturday, 23 March, 7.30pm, UCC Hall**



Since the Shang Dynasty, the Chinese have independently developed concepts in algebra, geometry, trigonometry as well as decimal and binary systems, establishing themselves as the world's foremost mathematicians. From the architectural marvels to Sun Tzu's *The Art of War* and the military strategies of the Three Kingdoms, the history of China is replete with stories of how mathematics has shaped the development of Chinese civilisations.

Through classic Chinese works such as *The Great Wall Capriccio* 《长城随想曲》, *Yellow River Concerto* 《黄河钢琴协奏曲》 and a revisit of *Symphonic Poem: The Battle of Red Cliffs* 《交响诗：赤壁》, NUS Chinese Orchestra will retell the history of China, and how mathematics has played a role in its survival and success. Featuring Tenor soloist Raymond Lim, and pianist Tan Tzu Kuang, concerto competition winner from the Yong Siew Toh Conservatory of Music.

## [The Child Who Loved Numbers 《喜欢数字的孩子》](#)

NUS Chinese Drama

Friday, 22 March, 7.30pm

Saturday, 23 March, 7.30pm

UCC Dance Studio



Height. Weight. Size. PSLE Grades. CAP Score. Postal Code. Phone Number. Lucky numbers. Numbers to be avoided. What do they all add up to?

Directed by Singapore theatre practitioner Judy Ngo (*Family Secrets, If There Are Seasons*) and devised together with NUS Chinese Drama, *The Child Who Loved Numbers* explores how numbers have different social and cultural meanings across borders and generations. In carrying the weight of these numbers on our shoulders, we reflect how they have necessarily or perhaps unduly affected the way we view ourselves.

我们往往习惯以数字衡量人生的各方面，如身高、体重、年龄、房价、分数、薪水。但在什么时候开始，我们需要用数字作为幸福感，存在感，成就感，甚至是人生价值的凭据？

有些人总需要以数字证明自己的价值。有些人虽受数字所束缚却能够勇于突破数字所限，创造更好的自己。你呢？

由吴美箬指导，国立大学中文戏剧社制作，通过《喜欢数字的孩子》，让我们一起探讨数字在现今生活中的地位。

**28**

**NUS Indian Dance**

**Friday, 15 March, 8.00pm, UCC Theatre**



“The mathematician’s patterns, like the painter’s or the poet’s must be beautiful; the ideas like the colours or the words, must fit together in a harmonious way” – GH Hardy

Taking its name from the *panchanadais*: five basic *jatis* (rhythmic beats) that form the basis of Bharatanatyam dance, NUS Indian Dance’s 28 celebrates the beauty of symmetry, geometry and proportion in art and nature.

In 28, Artistic Director and Resident Choreographer Mrs Santha Bhaskar draws inspiration from Da Vinci’s *The Vitruvian Man*, the Golden Ratio and the Fibonacci sequence, expressing these mathematical patterns through richly-textured visuals and original music in an evening of alluring classical Indian dance choreography.



## BEHALF

HORSE (Taiwan)

Friday, 22 March, 7.30pm

Saturday, 23 March, 7.30pm

UCC Theatre



Man is made up of many different parts and the complexity of human nature arises from whether the parts integrate as a whole or contradict each other. Can mathematical measurements like fractions express our identity, culture and art-making more accurately to represent ourselves and on behalf of others?

A danced dialogue between Taiwanese contemporary choreographer/ dancer Chen Wu-kang and Thai classical *khon* master Pichet Klunchun that began as a series of conversations about their cultural backgrounds and the patriarchal social structures in both Taiwan and Thailand, *BEHALF* investigates the relationship between traditional and contemporary dance and between students and their teachers. It is also about East and West and about their recent fatherhood that offers audiences an intimate insight that the sum of a man's parts is greater than the whole.

**Soirée 2019: Tessellations**

**NUS Harmonica Orchestra**

***Sunday, 17 Mar, 7.30pm, UCC Theatre***



*Soirée 2019: Tessellations* is an exploration of patterns and symmetry in music. We commonly see beautiful artworks created with repeating geometric shapes. Similarly, repeating notes and sequences are often woven into music. Recognising these patterns can change our perceptions of music, and enable the audience to consider another dimension to the performance. Join the NUS Harmonica Orchestra as they uncover patterns concealed within a selection of prominent works.

## Variations and Variables

**More Than Music (Abigail Sin and Loh Jun Hong), in collaboration with Yanyun Chen**

**Friday, 15 March, 8.00pm, UCC Dance Studio**



*Variations and Variables* celebrates the synergistic power of chamber music, creating an experience larger than the sum of its parts. Pianist Abigail Sin and Violinist Loh Jun Hong join forces to explore notions of evolution and transformation in music. Every twist of fate and every turn of the kaleidoscope reveals new emotional landscapes, leading us far away from home. What is certain is that we will be forever changed by these journeys.

Featuring the mighty *Chaconne for Solo Violin* by J.S. Bach, *Messiaen's Theme and Variations for Violin and Piano*, and selections from Beethoven's sublime *Piano Sonata in E Major Op. 109*, this concert will also feature a collaboration with visual artist Yanyun Chen, who was recently presented at the President's Young Talents 2019 exhibition at Singapore Art Museum.

## Sine of the Times: Celebrating Math through Math Rock Music

*Thursday, 7 March, 7.00pm – 10.00pm, Alice Lee Plaza*

*Free admission with registration*



Breaking free from standard time-signatures, Math Rock came into its own with asymmetrical time signatures of 7/8, 11/8 and 13/8. The result? — Pure aural intoxication. Chaotic, melodic, but always stimulating to the senses, the unique genre redefines the angular relationship between time and space in ultra-creative sounds. It is truly the sound of this zeitgeist.

Heading the line-up is LITE (Japan), hailed as “one of Japan’s top instrumental rock acts”. Founded in 2003, LITE has successfully toured the US, UK and Asia with their brand of sonic artistry that combines the precision and musicianship of Prog-Rock with the emotionally charged cinematic compositions of art rock, in a heavier, more modern package that they describe as math rock.

The line-up features home-grown Singapore band Forests, with their heady blend of math rock, pop (and even emo) and grab a chance to catch our very own NUS bands in rock heaven.

## **Critical Conversations**

As part of the Centre For the Arts' vision to nurture creative minds and inquiring spirits, the NUS Arts Festival presents Critical Conversations - a series of talks and panel discussions aimed at deepening the discourse and engagement with the themes raised during the festival. In particular this year, the programme seeks to present parallels between the arts and mathematics in their shared longing to express answers to humanity's deepest unsolved questions.

### **The Heart of Mathematics**

**Thursday, 17 January, 7.30pm, NUS Museum**  
**Free admission with registration**

Join two advocates for humanitarian issues - Kok Heng Leun (Artistic Director, Drama Box) and Dr Pablo Suarez (Artist-in-residence, NUS-Lloyd 's Register Foundation Institute for the Public Understanding of Risk) in a conversation about how the world of mathematics has informed their aesthetics and the work that they do in raising awareness about critical issues facing our world today.

Dr Pablo Suarez is Artist-in-Residence at the NUS-LRFI, and also Associate Director for research and innovation at the Red Cross/Red Crescent Climate Centre. Kok Heng Leun, the Artistic Director of Drama Box, and also the former Arts Nominated Member of Parliament (2016-2018), is known for his ability to engage the community on various issues through the arts, championing civil discourse across different segments of society.

### **Rhythms and Patterns in Performance**

**Thursday, 28 February, 7.30pm, NUS Museum**  
**Free admission with registration**

Join two Artistic Directors from productions in this year's festival, Mrs Santha Bhaskar (Choreographer of *28*) and Edith Podesta (Director of *A Disappearing Number*) in a dialogue that takes a closer look at the beauty of mathematical patterns and forms in art, nature and performance. Together with Assistant Professor Miguel Escobar Varela, a theatre researcher who applies computational methods to study theatre performances, discover new ways to look at Javanese dance and puppetry through network diagrams, maps and motion capture animations.

### **Rare Events**

**Thursday, 14 March, 7.30pm, NUS Museum**  
**Free admission with registration**

What are rare events? Why do they seem to occur so frequently? Join Emeritus Professor Louis Chen (Department of Mathematics, Department of Statistics and Applied Probability, NUS) in this talk, where he will give examples of rare events associated with catastrophes, lotteries, coincidences, and questions about the existence of extraterrestrial life. He will show that the paradoxically frequent occurrence of rare events can be explained by using the "law of small numbers".

Rare events also occur in the number system. For example, one can find Shakespeare's play "Hamlet" and Beethoven's Symphony No. 5 in the number system. He will relate the decimal expansion of the number  $\pi$  (pi) to coin tossing and use it to explain the occurrences of rare events in the number system.

## Films

***Ngee Ann Kongsi Auditorium, 7.30pm,  
Free admission with registration***

### [The Imitation Game](#)

***Friday, 15 March***

NC16 | English



During the winter of 1952, British authorities entered the home of mathematician, cryptanalyst and war hero Alan Turing (Benedict Cumberbatch) to investigate a reported burglary. They ended up arresting Turing on charges of 'gross indecency', but little did they know then that they were actually incriminating the pioneer of modern-day computing.

An intense and haunting portrayal of a brilliant, complicated man, *The Imitation Game* follows a genius who shortened the war under nail-biting pressure and, in turn, saved thousands of lives.

## [The Man Who Knew Infinity](#)

**Saturday, 16 March**

PG | English



*The Man Who Knew Infinity* is the true story of a friendship that forever changed mathematics. In 1913, Srinivasa Ramanujan (Dev Patel), a self-taught Indian Mathematics genius, travelled to Trinity College, Cambridge, where he forged a bond with the eccentric professor G.H. Hardy (Jeremy Irons), and fought against prejudice to reveal his mathematic genius to the world. The film also stars Devika Bhise, Stephen Fry and Toby Jones.

## [The Professor & His Beloved Equation](#)

*Thursday, 21 March*

*Saturday, 23 March*

PG | Japanese with English Subtitles



Starring Terao Akira, Fukatsu Eri, Yoshioka Hidetaka, and Asaoka Ruriko, this heartwarming tale is about a Mathematics genius who was set to become a professor at the University of Japan until a traffic accident shattered his dreams. Now the poor man has lost his short-term memory and can only remember the last 80 minutes of his life.

After different housekeepers have tried and failed to look after the troubled academic, a young woman and her 10-year-old son come to work for him. They are charmed by his love of mathematics and discover that within his cerebral musings are words and ideas of great beauty.



## Summer Wars

*Friday, 22 March*

*Saturday, 23 March*

PG | Japanese with English Subtitles



Mathematics whiz Kenji Koiso spends his summer holidays working to maintain the virtual city of OZ. When he accompanies his senior Natsuki Shinohara to her hometown, he is bewildered to be introduced as her fiancé. During his stay, Kenji receives a mysterious e-mail containing an intriguing mathematical riddle. When he finally solves it, Kenji finds himself thrust into a cyberwar of unimaginable proportions. Will he survive this battle of a lifetime and win Natsuki's heart?

Associate Professor Deborah Shamoon from the Department of Japanese Studies whose key area of research is manga and anime will present a short talk on the creation of virtual worlds before the screening on Fri 22 March.