

Music in KB presents  
**“Music at Extreme Conditions”**

featuring musicians from the  
**Edinburgh Quartet**

Tuesday 19 April 2011 at 7.00pm  
e-Science Institute, 15 South College Street, Edinburgh

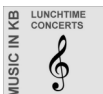
**Programme:**

- 1) Ludwig van Beethoven – String Trio in C minor Op. 9 No. 3
- 2) Julian Wagstaff – *In Extremis* (for string trio)

Tristan Gurney – Violin

Michael Beeston – Viola

Mark Bailey – Cello



# Welcome

Hello, and welcome to this very special concert organised by Music in KB, the music society at King's Buildings (the science campus of Edinburgh University). We are delighted to be presenting this concert at the e-Science Institute during the Edinburgh International Science Festival, and are grateful to Francesca Ziolkowska and her colleagues at the Institute for their help and support in making this concert happen.

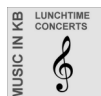
We are thrilled that Tristan, Michael and Mark from the renowned Edinburgh Quartet are available for this evening's concert, and grateful to them for their willingness to get involved with what is, perhaps, a somewhat unusual project. After all, it's not every day that musicians are presented with music inspired by the high-pressure phases of sulphur (to take just one example!), and their commitment to this project and their trust in us is very much appreciated.

On behalf of Music in KB we would like to thank in particular the University of Edinburgh Development Trust, whose generous and far-sighted financial support has enabled this project to happen. Specifically, it has allowed Music in KB's Composer in Residence, Julian Wagstaff, to spend time with our scientific colleagues at the Centre for Science at Extreme Conditions (CSEC), engaging with the ground-breaking work that goes on at the Centre and taking those insights forward into an ambitious and challenging piece of music. We will hear the very first performance of this piece, entitled *In Extremis* this evening – it is the second item on the programme.

We would also like to extend our warmest thanks to Jenny Rodgers and Colin Pulham from CSEC for their enthusiasm and assistance in relation to this project, and to them and other staff and students at CSEC for making our composer so welcome.

Finally, a big thanks to you for coming along! If you would like to be kept informed of future concerts organised by Music in KB, in particular the regular lunchtime concert series, please email Patricia Erskine on [patricia.erskine@ed.ac.uk](mailto:patricia.erskine@ed.ac.uk). You can also keep up to date with our planned events on our new website at [www.music-in-kb.com](http://www.music-in-kb.com)

Welcome once again, and enjoy the concert!



## 1) Ludwig van Beethoven – String Trio in C minor Op. 9 No. 3

1. Allegro con spirito
2. Adagio con espressione
3. Scherzo: Allegro molto e vivace
4. Finale: Presto

Anyone who has heard the first movement of Beethoven's Fifth Symphony cannot fail to be amazed by the way in which the composer takes a very simple musical motif ("da-da-da-dah") and, through variation, expansion and development, weaves it into a tapestry of immense power and beauty. Beethoven's matchless talent for creating towering musical structures from the simplest building blocks are also evident in the C minor string trio we shall hear this evening.

As the opus number indicates, this is an early work, written in 1797 when the composer was 26 years old and published the following year. It is an important work in terms of Beethoven's output, clearly revealing the composer's personality and genius, and pointing forward to later works such as the String Quartet Op. 18, No. 4, also in C minor.

The home key of C minor is prevalent throughout the first three movements of the work, though it is constantly contrasted with neighbouring keys in keeping with the classical tradition and – more importantly in this case – with the parallel key of C major. The repeated inflection of the third degree of the scale either upwards to E-natural (implying C major) or downwards to E-flat (implying the home key), sometimes within the same bar, imbues the work with a sense of tension and drama – an inexorable battle between minor and major, dark and light.

The tension is not truly resolved until the final bar of the piece – a glorious C major chord with the root note mirrored in the cello and violin. The struggle is over, and light is victorious.

JJW

## 2) Julian Wagstaff – In Extremis (for string trio)

This work is in three movements, as follows:

1. *SI-SVI*
2. *“Attempt No Landings Here”*
3. *Explosiv*

Each of the three movements is informed and inspired by the work of a different group of scientists working at the Centre for Science at Extreme Conditions (CSEC) at Edinburgh University. The Centre re-creates the extreme temperatures and pressures found at the centre of the earth and on distant planets, and investigates how substances react under these conditions.

The first movement draws on Dr. Olga Degetryeva's ground-breaking work on the high-pressure solid phases of the element sulphur, with the “SI-SVI” of the title referring to a journey from sulphur phase one through to phase six. In writing this section I wished to emphasise the “movement within stasis” aspect of those crystalline structures. Each phase has its own definite geometry, but that geometry is itself constantly pulsating and vibrating. The term “phase” also put me in mind of the work of minimalist composers such as Steve Reich (for example *Piano Phase* from 1967).

The second movement was inspired by Dr. John Loveday's work on methane hydrates on Saturn's largest moon, Titan. (The title of the movement is a reference to Arthur C Clarke's novel *2010*, the sequel to *2001-A Space Odyssey*, in which life emerges on Jupiter's moon Europa). Titan is of particular interest to researchers due to its relative size (it is larger than the planet Mercury), and because it is the only moon that we know of to have a fully developed atmosphere. On icy Titan, methane plays the role that water does in Earth's weather systems: it can form clouds, and can fall as rain – or even hail or snow. In 2004 the Cassini-Huygens mission discovered liquid hydrocarbon lakes in the satellite's polar regions.

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The third and final movement is a musical treatment of the high explosive CL-20, and is indebted to Professor Colin Pulham's work on the high-pressure "zeta" form of the substance. The explosive has the chemical formula  $C_6H_6N_{12}O_{12}$ , and this formula is reflected in the pitch and time signature choices within the movement. The application and nature of the explosive is represented in the musical gestures and articulation that give the movement its character and shape.

JJW

## Biographies

### The Edinburgh Quartet

With its distinguished international profile, the Edinburgh Quartet is Scotland's premier string quartet. Resident at the Ian Tomlin School of Music, Napier University, and at the University of Glasgow, it is one of the UK's longest-established university-based professional quartets and is Scotland's only full-time professional chamber ensemble.

The Quartet's repertoire is firmly rooted in the great classical European tradition of the last three centuries, though as this evening's concert ably demonstrates, it is not afraid to tackle contemporary music including challenging premieres and commissions.

"For fifty years the Edinburgh Quartet has been one of the leading chamber ensembles of the UK. I feel proud to be associated with them as they enter their second half-century under the dynamic leadership of Tristan Gurney, providing some of the most exciting performances in the business." James MacMillan, Patron.

**Don't miss** the Edinburgh Quartet **tomorrow night** (Wednesday 20 April) at St George's West Church, 58 Shandwick Place, Edinburgh. The concert starts at 7.30pm and will feature music by Mozart, Schumann and Tchaikovsky. Tickets £12.00 (£8.00) on the door.

The Quartet can be found on the Internet at [www.edinburghquartet.com](http://www.edinburghquartet.com)

### Julian Wagstaff

Julian is a composer, writer and guitarist based in Edinburgh. He enjoys close connections with many of the country's leading musicians, and his works are widely performed throughout Scotland and beyond.

His Piano Quintet appears on the album *Frontiers and Bridges* recorded by the Edinburgh Quartet and produced by Calum Malcolm, available on the Circular Records label. His opera *The Turing Test* was a sell-out success on the 2007 Edinburgh Festival Fringe, gaining excellent reviews in the UK press and cited by the novelist Alexander McCall Smith as a cultural highlight in the *Daily Telegraph's* Review of the Year. His stage musical *John Paul Jones* was performed in concert by the Scottish Chamber Orchestra and guest soloists in the Queen's Hall, Edinburgh in 2010.

Julian holds a PhD in musical composition from Edinburgh University and was recently appointed Composer in Residence at Kings Buildings, University of Edinburgh. He is currently working with David Williams, former General Manager of Scottish Ballet, on plans for future UK tours of *John Paul Jones* and *The Turing Test*.

More details can be found on Julian's website: [www.julianwagstaff.com](http://www.julianwagstaff.com).