

# THE BLACK OF THE STAR

FRIDAY 30 AUGUST 7PM

SATURDAY 31 AUGUST 7PM

ROSINA AUDITORIUM, ABBOTSFORD CONVENT

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**Gérard GRISEY (1946-1998)** *Le noir de l'étoile* (1989-90)

60'

**Peter Neville** (ANAM Head of Percussion) director/percussion

**Alexander Meagher** (ANAM alum 2021) percussion

**Aditya Bhat** (VIC) percussion

**Steven Bryer** (QLD) percussion

**Jesse Vivante** (WA) percussion

**Jamie Willson** (TAS) percussion

**Nathan Ellul** (ANAM Staff) sound design

*Approximate duration: 60 minutes*

## Warnings

*This event includes moments of darkness, flashing lights and haze.*

## Latecomers

*Please be aware that due to the nature of the work being presented, a lockout policy will be in effect for this event:*

- No entry or re-entry will be permitted after the performance starts.
- Make sure to arrive on time to avoid any inconvenience.
- Plan accordingly and ensure you have everything you need before entering.

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*Peter Neville's ANAM Faculty position is generously supported by Kerry Landman.*

*Aditya is supported by ANAM Syndicate donors Christina and Terry Hart, Igor Zambelli, John and Sue North, Annie Chapman, Kerry Landman, and the Estelle Redlich Circle.*

*Jesse is supported by ANAM Syndicate donors Sally and Antony Jeffrey, Marie Rowland.*

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# PROGRAM NOTES

## THE FABRIC OF MUSICAL TIME

A ticking clock. A flashing indicator light. Breath. The rising and setting sun. Seasons. Planets rotating in orbit. The twinkling of the stars. In every corner of our existence – and the universe that we observe – are rhythms. Bodies in motion, cycles of movement, oscillating particles and waves. Within these layers of noise, it is only human to seek order out of chaos and to find the patterns of the movement.

When a piece of music begins, how quickly can you feel the rhythmic pattern? Subconsciously, this process of *entrainment* is remarkably fast, with as few as two or three sequential sound events needed for our brains to recognise a pattern and predict the next beats, feeling the rhythm. Using musical tricks to play with your entrainment is nothing new – if there is an expectation, composers and musicians will always want to subvert it to create new musical interest. **Gérard Grisey** sought to closer examine this phenomenon of rhythmic perception through a musical work and companion paper, both titled *Tempus ex Machina* ('Time from the Machine'), which went on to form the first movement of *Le noir de l'étoile* ('The Black of the Star').

Grisey today is known among the spectralists, a recent school of composition using and inspired by the spectra of overtones produced by any given played note on an instrument. Whilst harmonics and the harmonic series have been known for thousands of years (both as mathematically derived by Pythagoras and a key technique in playing the 3,000-year-old guqin), the advent of computers allowed for the quantitative analysis of overtones within any given sound recording. Though a cello and a trombone may play the same note (or 'fundamental'), we perceive the colour of their sounds as different, due to differences in the overtones that make up each note. Grisey and fellow composers involved in the IRCAM (Institute for Research and Coordination in Acoustics/Music, founded by Pierre Boulez to advance avant-garde and electro-acoustic music) utilised these spectra as material to devise new works and create new sounds and colours beyond 'notes' and 'melodies'.

*Le noir de l'étoile* demonstrates a deeper examination that runs through Grisey's creative output: human perception of auditory phenomena. In his essay on *Tempus ex Machina*, Grisey codifies three layers to our perception of time, and specifically sound events as durations within an experienced temporal frame: the skeleton, flesh and skin of time.

The skeleton of time is rigid and measured in the 'true' time as the unchanging unidirectional dimension that progresses at a constant rate. This is the realm of the composer, of precisely notated subdivisions and ratios of sound events arranged against constant time on the score. Grisey argues that this is all purely theoretical and stops at the moment of perception. Nevertheless, deriving from works of Pierre Boulez and György Ligeti, he sees the use of time by composers on a spectrum of predictability, from the maximum predictability of periodicity (the steady ticking of a metronome) to the unpredictability of 'statistical' compositions, using mathematical and chance distributions to create a 'white noise' of random events, with various types of accelerating and decelerating systems between these two poles. Ligeti was an early innovator with his music of "clocks and clouds" – both of which utilised intense complexity to achieve textural effects and obscure, or even eliminate the importance of, rhythm: 'clocks' were highly mechanistic works whose density of rapid precise notes blur into a sense of gradual change; and the 'clouds' of his micropolyphony, where meticulously layered canons actively sought for the imperfections in live performance to create deterministic and unpredictable effects each time.

Adjacent to this spectrum is Boulez's *smooth* time, a non-rhythmic structure of imperceptible changes or a lack of sound events entirely – silence. Boulez was not the first to 'occupy' smooth time, but as an uncompromising modernist and provocateur, his adherence to the bleeding edge saw him frequently dismiss those he'd only just been championing for their apparent unwillingness to continue evolving. His treatise *Penser la musique d'aujourd'hui* ('Thoughts on the music of today') laid out the difference between 'counted' and 'uncounted' time, then put into practice in works including *Notations* and *Éclats*. And yet when faced with smooth time, the human brain's desire to perceive patterns means we will entrain to perceived patterns within structures designed as smooth or statistical as a method to create meaning in our experience of these works.

With the skeleton existing in the purely theoretical realm, we move to the flesh: that of the musician is the intuition or 'preaudibility' of a given work. In this case 'preaudibility' is the degree of predictability and its resultant impact on *musical* time. Musical time here is distinct from 'true' time, as our psychological experience of time when experiencing a musical work. Grisey theorises that this perception is altered by the predictability of events and acts as a unique dimension to a work's experience, a proximity. Predictable and steady sound events give us a close proximity and an expanded sense of time ("seeing the leaves"), as the predictability

allows the listener to hear small changes, whereas unpredictable or sudden changes contract time ("seeing the trees"), leaving a "violent" mark on the experience.

This becomes an important element in how Grisey constructs the temporal experience of *Le noir de l'étoile*, forcing the audience's perceptive proximity into different areas. Through the first six minutes of the work, Grisey creates an experience analogous to an opening shot in a film, slowly 'zooming' the frame of reference in, creating a novel predictability through this fairly steady transformation of the proximity. Time is dense and contracted as seemingly random short bursts interrupt an unsteady undercurrent of very quiet bass drum strikes, and as the texture becomes denser and these loud bursts become more frequent, time inversely becomes expanded and our proximity to the sound is closer, and our awareness of smaller changes is greater.

This brings us to the final layer, the skin of time: the psychological and sociological understanding of time as the degree of difference between musical time and the listener's time, or their degree of presence between the impulsive micro perspective of each moment after another and the intellectual macro perspective of memory. Between these is an entropic process utterly subjective to the listener, where the initial experience of any musical moment is increasingly distorted by the length of time it has been in our memory. Again, Grisey emphasises the effect of predictability on influencing this skin of time. Repetition condenses an experience towards a hypnotic indistinguishable continuity at its extreme (such as in drone music), and salience creates markers which add structure to a memory and expands our perception of its duration. Salience is completely relative here, as a score full of loud, 'distinct' moments will be interpreted by the listener as experientially flat, as the distinction of each event becomes lost in the noise and the listener loses their marker.

As *Le noir de l'étoile* unfolds and refolds over this hour, Grisey is intentionally manipulating the psychological experience of time. This is not music of harmony and melody, but music of memory and experience, where the flesh and skin of time are their own dimensions, a remarkable experience that calls for an open mind and a way of listening both novel and revelatory.

About twenty minutes into *Le noir de l'étoile*, a new sound like heavy pattering begins over the speakers, a constant stream of impulses notated by Grisey as eleven impulses per beat. These are a recording of faint signals picked up by radio dishes of pulsars – remnants of stars which spin up to hundreds of times per second with such consistency that they were first thought to be of intelligent (alien) origin when discovered in 1961. Like an ice skater who pulls in their arms to spin faster by concentrating their mass, when a massive star collapses it can become immensely concentrated into a pulsar, and by conservation of momentum, because almost the same mass has concentrated itself into a sphere of just 15km in diameter, this once slowly spinning star has its speed of rotation increased enormously. Pulsars are named so because of the electromagnetic energy ejected at each pole, which when spinning around 'pulse' at Earth like the spinning light atop a lighthouse.

The first pulsar heard in this recording is the strongest we have discovered, the Vela Pulsar, found by astronomers working in Tasmania. The second, PSR B0329+54, spins roughly 1.4 times every second. In the première performance, PSR B0329+54 was heard 'live', with the signals received down telephone lines from a nearby observatory in the centre of France. When pulsars were discovered, their rotations were as precise and regular as the atomic clocks of the time, and we continue to use these to calibrate our own terrestrial time, and to measure gravity-related phenomena that bend and dilate spacetime.

The use of these pulsars creates a cosmic time against which our own terrestrial experiences challenge and dilate against, giving perspective to our internal perceptions of duration as Grisey's percussion influences it. The ejection of energy which creates these electromagnetic beams will slow and eventually 'turn off' the pulsar, leaving only a spent neutron star. The piece dies out, the stars will burn out, but for a brief moment cosmic and human time are entwined in this one musical event, suspending reality and creating this transient musical reality.

"Like great lighthouses in the heavens, pulsars will guide our musical navigation. Let us listen to these cosmic clocks marking out their seconds. We have an appointment with the guardians of time. It is a date with a loved one. Let us open the window and await the precise time."

—Jean-Pierre Luminet, French astrophysicist, from the introductory notes to *Le noir de l'étoile*

Written by Alex Owens, ANAM Music Librarian, Robert Salzer Foundation Library

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