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# Neutron Star performance art workshop informed by Indigenous Knowledge, Queer Identity and quantum physics

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Performance art workshop pedagogy informed by the science of Neutron Stars.

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## Resumen

La práctica artística, nutrida por la intersección transdisciplinaria de astrofísica, conocimiento indígena y neurociencia, puede conducir a un cambio social inclusivo, significativo y positivo (Sullivan 2006). Se logra examinando los relámpagos a través de la diferencia sexual, la indagación filosófica indígena y científica, la escultura y el arte performático. El objetivo es invitar a la audiencia a ampliar su percepción de la identidad mediante el conocimiento indígena, el arte y la performance (Cameron 2005).

La investigación científica y filosófica dentro de esta práctica provocó el alejamiento del artista del léxico binario al identificarse no como una mujer o un hombre sino como un rayo, basándose en su práctica creativa transdisciplinaria de toda la vida.

Esta identificación de Bon Mott como relámpago fue inspirada por Bon Scott, el cantante y compositor de la banda de rock australiana AC/DC desde 1974 hasta su muerte en 1980. Cuando un periodista le preguntó si era el 'AC' o el 'DC', Bon Scott respondió: "Ninguno, soy el destello de relámpago en el medio" (Walker 1994, p. 149).

La identificación de Bon Scott como el destello de relámpago en el logo de la banda puede tener múltiples significados: AC/DC es una abreviatura para corriente alterna/corriente continua, de la cual la banda toma su nombre. También significa 'bisexual' en la jerga inglesa de los años 70 y es una descripción de identidad fluida y transgénero en las comunidades de género diverso de Indonesia.

Un modelo sobre los orígenes del relámpago dentro de la ciencia occidental, sugiere que proceden de rayos cósmicos generados por supernovas (Binns et al. 2019). Estos ingresan a la atmósfera terrestre, chocan con oxígeno y nitrógeno y producen una lluvia de rayos X y partículas subatómicas. Los relámpagos ocurren cuando los electrones se mueven entre las nubes y la superficie terrestre. En este modelo, el relámpago tiene un origen intergaláctico, y tarda millones de años en llegar a nosotros.

Esta investigación fue iniciada por un trabajo de campo en Minnesota, donde Bon Mott aprendió la ciencia Indígena del rayo y la energía (Wakanj, que se traduce como fuerza intangible, misteriosa y poderosa) con los Dakota, Lakota y Nakota (OcetiŠakowiŋ, que se traduce como Los Siete Consejos del Fuego).

El aprendizaje de la ciencia de los orígenes del rayo, motivaron a Bon Mott a curar el laboratorio de arte transdisciplinario llamado NeutronStar (Estrella Neutrón) para artistas transgenero e Indígenas organizado por el activista Guillermo Gómez-Peña y la compañía internacional de artes escénicas 'La Pocha Nostra'.

**Palabras clave:** relámpago, performance, estrella de neutrones, cambio social, no-binario.

## Abstract

Artistic practice—informed by the transdisciplinary intersection of astrophysics, Indigenous knowledge, and neuroscience—may lead to inclusive, meaningful and positive social change. (Sullivan 2006). This is accomplished by examining lightning through the lens of sexual difference, Indigenous and scientific philosophical inquiry, and sculpture and performance art. The aim of the creative practice and process is to invite audiences to expand upon their perception of identity through learning the teachings of Indigenous Knowledge, non-archival art and the process of making. (Cameron 2005).

The scientific-philosophical research within this practice sparked the artist's departure from the binary lexicon by identifying not as a woman or a man but as lightning—building upon their lifelong transdisciplinary creative practice.

Bon Mott identifying as lightning was sparked by Bon Scott, the singer and songwriter of the Australian rock band AC/DC from 1974 until their death in 1980. When asked by a journalist whether they were the 'AC' or the 'DC', Bon Scott replied, "Neither, I'm the lightning flash in the middle." (Walker 1994, p. 149)

Bon Scott's identification as the lightning flash in the band's logo can have multiple meanings: AC/DC is an abbreviation for an alternating current/direct current electrical power system, from which the band takes its name. It also means 'bisexual' in 1970's English slang and is a transgender identity-fluid-crossing description in the gender-diverse communities of Indonesia.

A developing model on the origins of lightning within Western Science is that lightning originates from cosmic rays generated from supernovae. (Binns et al. 2019). Cosmic rays enter the Earth's atmosphere, collide with oxygen and nitrogen to produce another shower of X-rays and subatomic particles. The lightning strikes we see occur from electrons moving between clouds and Earth's surface. In this model, lightning is intergalactic in origin, taking millions of years to reach our ozone layer in the form of cosmic rays.

The electrical energy in a thunderstorm splits apart nitrogen molecules, which then combine with oxygen to form nitrates. Nitrates fertilize the soil and mineralise water, known as the nitrogen cycle. Just as cosmic rays are formed in supernovae, the iron in our blood was formed in the cores of dying stars through nuclear fusion, seeded across the cosmos through supernovae. This leads to the science of identification as lightning, learning from Wakan— a word meaning mysterious, powerful, and intangible energetic force in Dakota, Lakota and Nakota (Oceti Šakowin - The Seven Council Fires) Knowledge.

Learning the science of the origins of lightning motivated Bon Mott to curate the transdisciplinary art lab called Neutron Star for radical artists Indigenous and/or non-binary, transgender, participants from backgrounds in performance art, dance, and theory, hosted by activist Guillermo Gómez-Peña and the international performance troupe 'La Pocha Nostra'.

**Keywords:** lightning, performance art, neutron star, nonbinary, social change.

## ⌒ (Dr Bon Mott) - artist, curator and educator

Using the philosophical approach of this practice, personal identity terms I/me/mine are replaced with the symbol ⌒, which will be used throughout the remainder of this paper. The author, ⌒, is a prolific international artist-curator-educator, born in California, Turtle Island (North America), now living/working in Ngár-go (Fitzroy), Naarm (Melbourne) on the ancient land named Australia by British settlers.

The research process and artistic practice that inform this work are drawn from non-normative identity (Queer and non-binary) and learning disabilities (neurodivergence), and personal experiences

with both. The artistic practice focuses on site-specific process-driven sculpture installations that are activated by performance, informed by transdisciplinary, transformative, mixed-method research methodologies.

The installations built for these performances use film, photography, sound, silk, steel, bronze, magnets, chains and beads. Community grants and arts institutions fund these exhibitions and artist talks. The methodology utilized the concept of reciprocal nurturing by collaborating with a community of marginalized artists at the gallery *Second Space Projects (2SP)*. This practice is developed through authentic relationships of trust with First Nations elders and community members. Living on colonised, stolen land involves a commitment to collaborating with First Nations

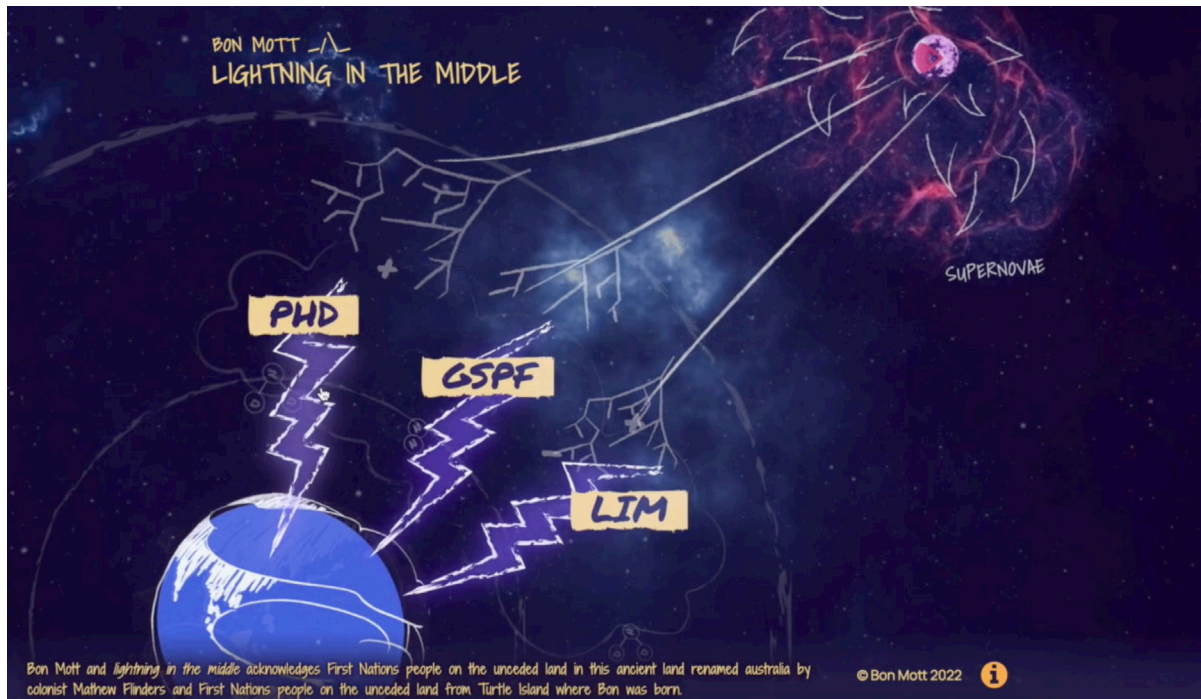


Figure 1. Bon Mott ⌒, *Lightning In The Middle*, website screengrab. 2022.

creatives and curatorial projects therefore,  $\Lambda$  ensures exhibitions commence with a *Welcome to Country* by the Traditional Owners/Custodians (The National Indigenous Australians Agency, 2023).

The *Neutron Star Performance Art Pedagogy NSPAWP* (the title will be expanded upon in the next section) is based on research collaborations with physicists, examining the nature and origins of lightning, the importance of *Dark Skies*, and the Queer ecologies of lightning to understand personal identity in terms of lightning.

$\Lambda$ 's thesis title, *Lightning in the Middle*, is based on Bon Scott, the deceased former singer/songwriter of the band AC/DC. The research and artistic practice is about performing as the ghost of Bon Scott.  $\Lambda$  researches Bon Scott as a trickster rockstar. When a journalist in the 1970s noted that the term AC/DC was lang for bisexual, Bon Scott was asked if he was the AC or the DC. In a trickster fashion, he replied, "Neither, I'm the lightning in the middle" (Walker, 1994). Bon's identity as a lightning bolt serves as the foundation of this philosophical approach.

Personally, identifying as lighting is not simply a concept drawn from a cheeky comment made by a trickster rockstar. In the cultural traditions of First Nations people, particularly the Lakota of the northern Midwest of the USA (this will be expanded upon in the next section). NSPAWP's methodology emphasises the responsibility of learning Indigenous and scientific-philosophical inquiry and building trust through collaboration and non-archival art processes.

The NSPAWP's philosophy was to mutually raise awareness of performance art and the

science of neutron stars. Both are intangible yet inspiring and vibrant. Art is a valuable interpreter of science and makes scientific enquiry accessible to wider audiences, a benefit leveraged in this workshop. Additionally, the pedagogy of this workshop is described in the film *Neutron Star Performance Art Laboratory at 2SP*<sup>1</sup>, which makes the concept accessible, particularly for those with neurodivergent conditions such as dyslexia.

## The Science of Lightning

Although lightning is a common weather phenomenon, the exact mechanism triggering a lightning discharge remains elusive. Fieldwork in Minnesota in 2018 on the Lakota (Lakǰóta/Lakhóta) understanding of lightning led to research on how lightning may originate from deep space. In his book *Blackfoot Physics*, David Peat describes Wakan as a mysterious, powerful, and intangible energetic force in Lakota/Dakota/Nakota traditions (Peat, 1995). From 1887, Reverend J. Dorsey translated 257 texts by Teto Lakota George Bushotter for the Smithsonian Institute Bureau of American Ethnology, where Dorsey worked from 1880 to 1895. Dorsey translated Wakinȳan/thunderbird (kinyan: to fly) as a being bringing lightning and thunder from the West:

Wakíȳ ȳ ('Flying Ones') is lightning and its voice thunder. They dwell in a nest atop a high mountain in the west. The Wakíȳ ȳ live and fly through the heavens, shielded from mortal vision by thick clouds (Dorsey 1894).

<sup>1</sup> Mott, Bon. Performing our own death 7:31/11:58. *Neutron Star Performance Art Laboratory at 2SP*



Each lightning strike produces 300 million volts of electricity. Only recently has it been questioned how this high voltage can be generated in storm clouds. Recent research posits that extraterrestrial cosmic rays may initiate lightning. Galactic cosmic rays are produced by distant supernovae and travel through space for millions of years before reaching Earth's atmosphere. Professor Joseph Dwyer researches the atmospheric runaway breakdown phenomenon concerning lightning that may originate in cosmic rays and gamma-ray astronomy (Dwyer & Uman 2014).

Researchers at the Advanced Radiation Technology, University Groningen, Institute for High Energies, Vrije Universiteit Brussel, and the Astrophysical Institute have published a realistic model involving large ice particles and cosmic rays (Dubinova et al. 2015). Cosmic rays enter charged storm clouds containing conductive hydrometers/tubular ice and electrically short-circuit, creating a combination of leaders and step leaders of incandescent light, also known as terrestrial plasma (Rodger 2014). The electrical energy of Earth's thunderstorms splits nitrogen molecules apart, which then combine with oxygen to form nitrates/nitrogen fixation (Scott, 2023).

Lakota astronomer and artist, Annette S. Lee, describes lightning's connection to nitrogen fixation. In her video "Wakinyans, Thunderbird Constellation", she describes how nitrates feed soil and water for plants and animals – becoming the pathway for people to absorb nitrogen through food (Lee 2019, 0:4:00).

Just as cosmic rays are formed in supernovae, the iron in our blood was formed in the cores of dying stars through nuclear

fusion, seeded across the cosmos through supernovae. Researching supernovae led to the study of neutron stars.

## Introduction to Performance Art Pedagogy

During this research, there were no performance art departments at Australian universities. This necessitated international travel to attend performance art workshops, leading  $\sphericalangle$  to partake in an 11-day intensive workshop with 13 international artists in Venice, Italy. The workshop was facilitated by La Pocha Nostra, a performance art troupe based in San Francisco that hosts multidisciplinary live art laboratories for *radical artists* such as performance artists, actors, dancers, theorists and activists. Guillermo Gómez-Peña, an academic and Chicano performance artist, founded this troupe. It consists of Guillermo Balitronica Gómez-Peña and Saúl García-López, who impart wisdom through exercises centred around their critical manifesto, the *Pedagogy of Radical Tenderness* and its importance for "a third space" to understand each other's diversity (Gómez-Peña et al., 2021). During the Venice workshop, The participants learned Gómez-Peña's *Pedagogy of Radical Tenderness* performance art. One of the processes at the workshop was performing our death through a companion, which was interpreted as a kind of 'death dance' akin to the formation of neutron stars (Mott, 2023).

# Neutron Star Performance Art Pedagogy NSPAWP

Like neutron stars, performance art is diffi-

cult to classify because it is an oddity. This, in turn, influenced *Neutron Star Performance Art Laboratory*, which included a workshop opened with a Welcome to Country by Boon Wurrung Elder and language specialist Aunty Fay Muir. NSPAWP was a three-day intensive student-run performance art workshop informed by the intersection of

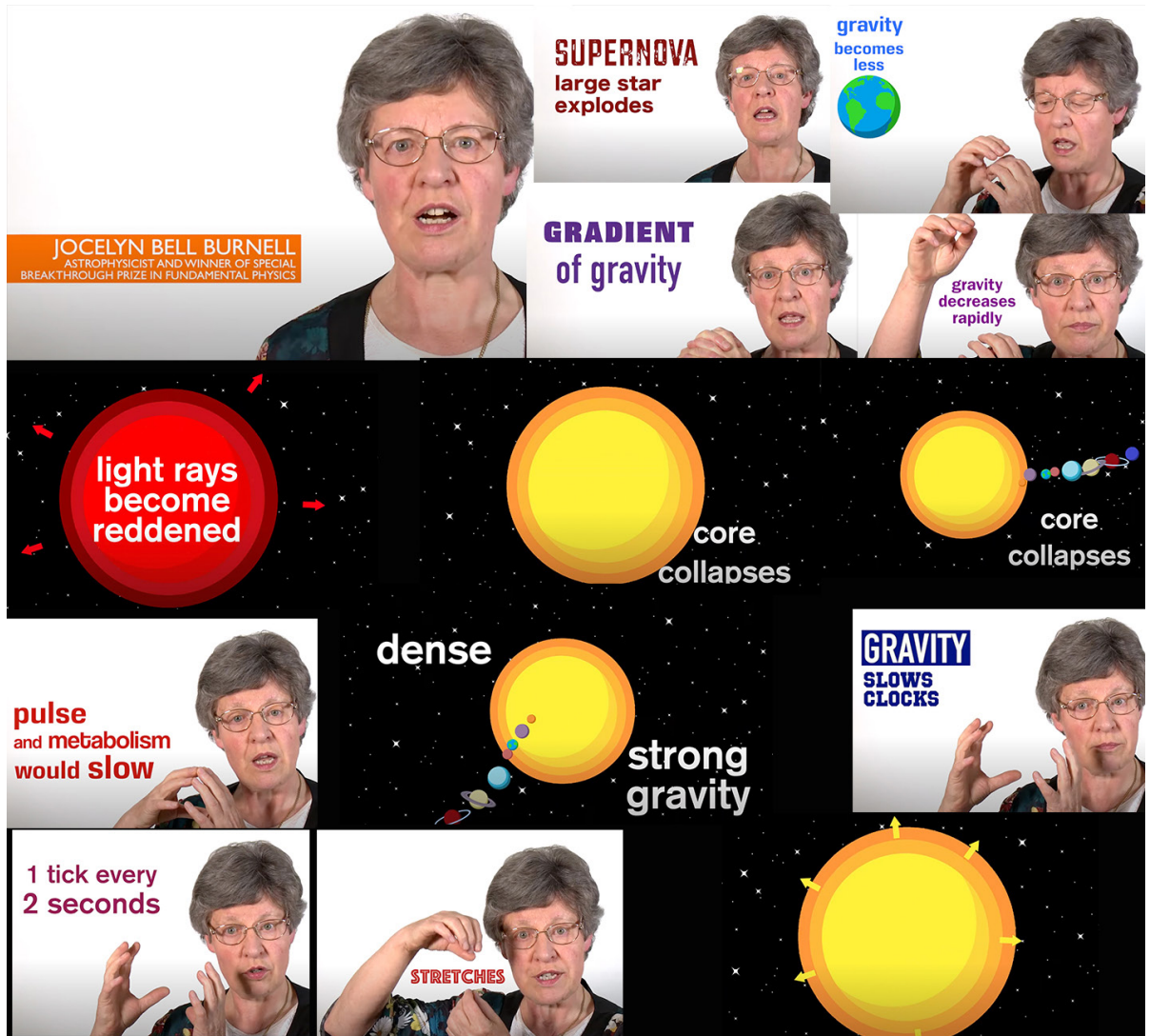


Figure 2. Bon Mott\_Λ, “Jocelyn Bell Burnell Describes How She Discovered Pulsars,” Jocelyn Bell Burnell, *Beautiful Minds*, 2010. Digital Collage. 2021.

performance art, astrophysics, Indigenous Knowledge, neuroscience, and gender diversity within the community of marginalised students at the University of Melbourne. NSPAWP included Indigenous, non-binary, transgender, and neurodivergent participants from different backgrounds in performance art, dance, theory, and activism. One of the workshop exercises encouraged participants to perform each other's deaths. Performing one's death through another participant is integral to the research practice of performing as the ghost of Bon Scott. When a massive star dies and explodes as a supernova, it collapses into a neutron star (or black hole). The discovery of rapidly spinning neutron stars (pulsars) by Jocelyn Bell Burnell led to understanding a new kind of star that behaved unexpectedly. Burnell's (2010) description of neutron stars became the choreographic curatorial theme for the intensive transdisciplinary live-art laboratory curated by the author, hosted at Second Space Projects (2SP) in Melbourne and facilitated by the international performance troupe La Pocha Nostra. 2SP was funded by the University of Melbourne's Wellbeing Arts Graduate Group

through the Students' Services Amenities Fund for experimental non-curricular projects where marginalised creative students felt safe engaging in experimental artistic projects outside the University of Melbourne's Southbank or Parkville campuses. The philosophy of the NSPAWP was to raise awareness of both the science of neutron stars and of the following Melbourne artists: Bella Waru, a young Māori dancer and singer; Tyson Campbell, a Māori artist and curator; kori miles, a Māori activist interdisciplinary artist; Georgia Banks, a feminist, Queer artist; Kirby Castle, an artist and musician; Rowan Oliver, a transwoman artist and writer; Alexander Powers, a transgender dancer, producer; Campbell Rothnie, a transgender artist and writer; Li Su, an accounting student and Bon Mott\_Λ.

## Outcomes

The NSPAWP performance art workshop with La Pocha Nostra became the framework through which the author tested and demonstrated transdisciplinary, transfor-

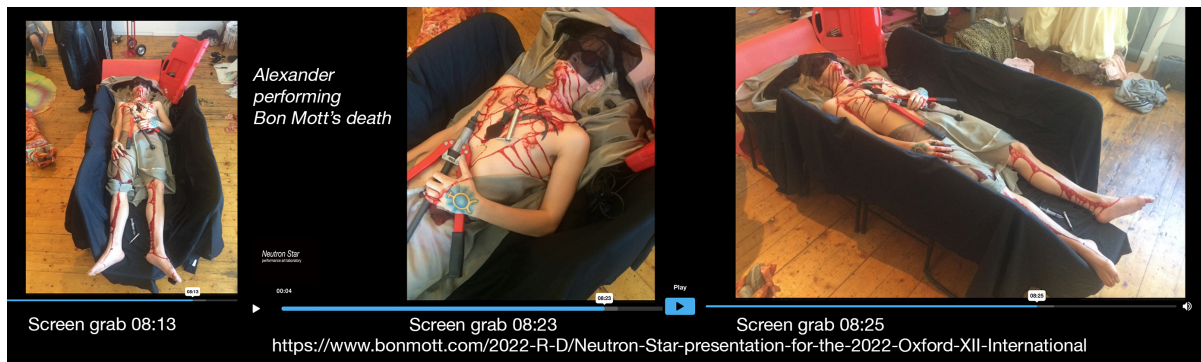


Figure 3. Bon Mott\_Λ, *Vampire Death* with Alexander Powers. *Neutron Star* is a 2022 Oxford XII International Astronomy Conference film presentation.



mative, mixed-method research methodology. The curatorial premise for the NSPAWP parallels Queer identity as an energy process (Barad, 2015) with the process of protons and electrons merging into neutrons to form neutron stars. Examining neutron stars through a Queer lens as a methodology of expanded self-identity. (Amrou 2018 1:46) NSPAWP's methodology stressed the importance of learning Indigenous and scientific-philosophical inquiry while illustrating the importance of building trust through collaboration and non-archival art performance processes such as choreography. The NSPAWP workshop tested how the science and super-fluidity of neutron stars as cosmic bodies provided a welcoming and expansive space for artists to test intensive performance art pedagogy to promote inclusive, meaningful, and positive social change.

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