

Conference Frontiers of Quantum and Mesoscopic Thermodynamics 2026

## Public Lecture of Amir O. Caldeira and Concert

Dedicated to the memory of Anthony J. Leggett

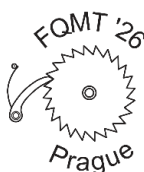
Main Hall of the Pyramida Hotel  
Thursday July 30, 2026

|               |                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 19:00 – 19:10 | Music introduction, Opening address                                                                                                 |
| 19:10 – 19:40 | Fernando Sols:<br>“Remembering Tony Leggett”                                                                                        |
| 19:40 – 20:30 | Amir O. Caldeira:<br>“Macroscopic quantum phenomena and<br>related matters: A brief history and the<br>Nobel Prize in Physics 2025” |
| 20:30 – 20:40 | Discussion                                                                                                                          |
| 20:40 – 21:00 | Break                                                                                                                               |
| 21:00 – 22:10 | Concert                                                                                                                             |

### Music Introduction

G. F. Handel (1685 - 1759):  
M. Kejmar (trumpet)  
P. Kšica (piano)

Suite D Dur, HWV 341,  
March



<https://fqmt.fzu.cz/26/>

# Macroscopic quantum phenomena and related matters: A brief history and the Nobel Prize in Physics 2025

**Amir O. Caldeira**

*Universidade Estadual de Campinas, Brazil*

It is my intention in this talk to present a chronological overview of the development of the basic ideas of what is nowadays called *macroscopic quantum phenomena*, show where to find and study them.

I shall approach the problem by introducing a few quantum mechanical phenomena through very simple examples accessible to a lay audience. Next I will extend them to mesoscopic superconducting devices – the SQUIDs and CBJJs – which act as “giant atoms”, where effects such as the quantization of energy, and quantum mechanical tunneling of a macroscopic variable take place. I shall further discuss the implications of these quantum phenomena, and the unavoidable influences to which they are subject such as, for example, the presence of dissipative effects. Actually, these systems have become the paradigm of the area of quantum dissipation.

Then, I shall present the experimental results which indisputably prove the existence of macroscopic quantum phenomena in superconducting devices, namely the pioneering measurements of J. Clarke, M. Devoret, and J. Martinis in the mid 1980s for which they were awarded the Nobel Prize in Physics in 2025.

Finally, I shall mention other possible examples of these phenomena in condensed matter physics, their potential applications, and even impact on the foundations of quantum mechanics.

**Amir O. Caldeira**

Amir Ordacgi Caldeira is a Brazilian physicist who deals with theoretical condensed matter physics, in particular quantum dissipation and strongly correlated electron systems. His best-known work is on the Caldeira–Leggett model, which is one of the first and most important treatments of decoherence in quantum mechanical systems.

Amir Caldeira received his bachelor's degree in 1973 from the Pontifícia Universidade Católica do Rio de Janeiro (PUC/RJ), his M.Sc. degree in 1976 from the same university, and his Ph.D. in 1980 from the University of Sussex. His Ph.D. advisor was the Physics Nobel Prize winner Anthony James Leggett. He joined the faculty at the Universidade Estadual de Campinas (UNICAMP) in 1980. In 1984-1985 he did post-doctoral work at the Institute for Theoretical Physics (ITP) at the University of California, Santa Barbara (UCSB) and at the Thomas J. Watson Research Laboratory at IBM. In 1994–1995 he spent a sabbatical at the University of Illinois at Champaign – Urbana. He is currently a retired senior professor at UNICAMP. He was the recipient of the Joaquim da Costa Ribeiro Prize of the Brazilian Physical Society in 2022, for his major contributions to Condensed Matter Physics.

# Program of the concert

**A. Vivaldi** (1678 - 1741)

M. Kejmar (trumpet)

P. Kšica (piano)

**Concerto in B-flat major**

**G. F. Handel** (1685 -1759)

A. Bager (oboe)

K. Kovalová (oboe)

Jan Thuri (Cor anglais)

**Arrival of the Queen of Sheba, from oratorio  
Solomon, HWV 67**

**G. F. Handel** (1685 - 1759)

A. Bager (oboe)

K. Kovalová (oboe)

J. Thuri (Cor anglais)

**“Lascia ch’io pianga” from opera Rinaldo**

**I. Stravinsky** (1882 - 1971)

T. Víšek (piano)

**Piano-Rag-Music**

**F. Schubert** (1797 – 1828)

M. Kejmar (flugelhorn)

P. Kšica (piano)

**Ave Maria**

**F. Liszt** (1811 - 1886)

T. Víšek (piano)

**Legend No. 2 “St. Francis of Paola Walking on  
the Waves”**

**J. Haydn** (1732-1809)

P.-J. Kšica (bass)

P. Kšica (piano)

**Oratorio The Creation**

Aria “Now Shines Heaven in the Brightest Glory”

**B. Martinů** (1890 - 1959)

T. Víšek (piano)

**Prélude No. 8 en forme de fox-trot**

**W. A. Mozart** (1756-1791)

P.-J. Kšica (bass)

P. Kšica (piano)

**Le nozze di Figaro**

Figaro’s aria “Non più andrai”

**G. Gershwin** (1898 - 1937)

T. Víšek (piano)

**Fascinating Rhythm**

**Oh, Lady Be Good!**

**A. Dvořák** (1841 - 1904)

A. Bager (oboe)

K. Kovalová (oboe)

J. Thuri (English horn)

**Slavonic Dance No. 8**

## Performers

### **Adam Bager (oboe)**

Adam Bager studied Philosophy and Psychology at Oxford University, founded an IT services company in Prague in 1992, and has studied and played the oboe seriously from the age of ten. In his semi-retirement playing music has become paramount, and over the last five years he has studied with Czech oboist Jan Thuri, and attended masterclasses with Nicholas Daniel and Jean-Louis Capezalli.

### **Miroslav Kejmar (trumpet)**

Miroslav Kejmar graduated from The Prague Conservatory after studies with Professor Junek. He then studied in the class of Professor Václav Pařík at The Prague Academy of Arts. Already during his studies at The Academy of Arts in Prague, he played in various orchestras, e.g. in the Film Symphony Orchestra and the Czech Philharmonic Orchestra. Apart from guest appearing with several chamber brass ensembles, he works on a permanent basis with the Prague Brass Soloists, of which is a founding member. His career as a soloist is equally wide-ranging. He is well known to audiences in many European countries, as well as Japan. Apart from classical music, he is also interested in dance, jazz and popular music. For about three years he played in the orchestra involved in the famous musical, Jesus Christ Superstar. He was a member of the Karel Vlach orchestra. Miroslav Kejmar was, over thirty years, the first trumpeter of the Czech Philharmonic Orchestra, and played many years with the "Ten of the Best" ensemble, the famous international group of trumpeters. He nowadays plays frequently as a soloist; he is a member of the Prague Brass Soloists and Czech Philharmonic Brass ensembles.

### **Kristýna Kovalová (oboe)**

Kristýna Kovalová is currently studying the oboe at the Prague Conservatory. In the 2025–2026 school year, she was in the class of Pavel Tylšar and Vladislav Borovka; in the upcoming 2026–2027 school year, she will study in the class of Jan Thuri and Jan Hoďánek. Since 2024/2025, she has been studying the oboe in the framework of the MenART Scholarship Academy program. Her achievements include third prize at the ČSDN Performance Competition, third prize in the Gustav Mahler Prize competition, and third prize at the Beethoven's Teplice Competition. During her studies, she also actively participated in masterclasses (Iveta Bachmannová, Clara Dent Bogányi, Jérôme Guichard, Michaela Hrabánková, Gabriel Pidoux). Since 2023, she has been a member of the Písek Chamber Orchestra; she is a co-founder of the chambre ensemble Musica luvenalis, and since December 2025, she has been a member of the Prague Film Orchestra.

### **Pavel-Josef Kšica (baryton/bass)**

Pavel-Josef Kšica was born into a musical family in Prague and has been playing the piano since childhood. In 2015, he began to delve into choral singing, and a year later, solo singing. After graduating from high school, he was accepted to the Prague Conservatory, where he studied singing under the guidance of Prof. Jiří Kubík. He

continued his vocal education in the Convivium courses, focusing on Baroque repertoire under the direction of the prominent English early music expert, James Gray. In 2022, he was accepted to the Academy of Performing Arts in Prague - HAMU, where he continues his studies with Prof. Martin Bárta. He regularly performs concerts on various occasions. Since 2016, he has sung the solo bass part in the Czech Christmas Mass by J. J. Ryba every year. In 2018, he conducted a 160-member student ensemble in five successful performances of the same work. Additionally, in 2018 and 2019, he portrayed leading roles in H. Purcell's *The Tempest* (Neptune) and G. F. Handel's *Acis and Galatea* (Polyphemus) at the International Early Music Courses in Spálené Poříčí. In 2019, he was a guest performer at a Baroque opera concert as part of the Early Music Day festival in Wexford, Ireland. During the summer of 2021, he performed the role of Jinoch of Athens in Bohuslav Martinů's opera *Ariadne*, as part of the Smetana's Litomyšl festival. He also portrayed the role of Il Conte in W. A. Mozart's *Le nozze di Figaro* as part of HAMU's opera studio performances. In recent years he has been heard as a cantor of singing during major ceremonies in St. Vitus Cathedral in Prague. He is dedicated to the song repertoire, particularly the works of G. Mahler and F. Schubert. He has performed Schubert's *Winterreise* four times in 2024. Together with pianist Filip Martinka, he was awarded the Gustav Mahler Prize for their interpretation of Mahler's *Kindertotenlieder* during the song academy IPASA.

### **Přemysl Kšica (piano)**

After graduating from high school, Přemysl Kšica studied organ at the Prague Conservatory, the Academy of Performing Arts in Prague (Prof. Josef Popelka) and the Stuttgart State University of Music and Performing Arts (Prof. Dr. Ludger Lohmann), and conducting (Prof. Jan Valta) at the Teplice Conservatory. He studied organ improvisation with Professors Jaroslav Vodrážka, Jaroslav Tůma and Johannes Mayr. He further expanded his education through numerous organ courses led by outstanding foreign organists (Lorenzo Ghielmi, Olivier Latry, Günter Kaunzinger and others). Přemysl is the recipient of numerous awards from organ competitions. He won the prize for organ improvisation in Opava three times, in 2004 he won 3rd prize at the International Competition of Young Organists in Ljubljana, in 2005 2nd place at the Organ Competition in Most and in 2010 2nd prize at the International Petr Eben Organ Competition in Opava. In the past, he frequently collaborated with various vocal-instrumental ensembles (Kühn's Mixed Choir, Prague Philharmonic Choir, Prague Cathedral Choir, Czech Philharmonic Choir Brno, North Bohemian Philharmonic Teplice, Bohuslav Martinů Philharmonic, Hradec Králové Philharmonic, Tian Jin Symphony Orchestra and others). He has worked as a church organist in Prague for many years, since 2013 at the Church of St. Nicholas in Lesser Town. He has taught organ at the Conservatory in Teplice. He has played in concerts and made recordings both in the Czech Republic and abroad (he has performed in many European countries, as well as in Russia and China).

### **Jan Thuri (oboe)**

A leading Czech oboist Jan Thuri was born into a family of musician in Praha in 1975. He came in contact with art at an early age through playing violin and piano. He has been playing oboe since the age of thirteen. When he graduated from the Prague Conservatory in the class of his father František Xaver Thuri, he crowned his studies



at the Utrecht College of Music with Ernest Rombout and at the Ostrava University with Dušan Foltýn. He also took part in a few excellent courses with Jean-Louis Capezzali, Maurice Bourgue, Han de Vries, Jérôme Guichard and Jacques Tys. During his studies he won many awards in international competitions (Czech Republic, France, Great Britain). Jan Thuri is a sought-after solo and chamber music player. He co-operates with the foremost local and foreign orchestras. As a soloist, Jan Thuri has played in virtually all countries of Europe, in the USA, Japan and Korea. He records for the radio stations Czech Radio, Radio France and the British BBC where he recorded the Richard Strauss oboe concerto in D-Major in live broadcast. In 2002 he founded the chamber orchestra "Thuri Ensemble" and he plays actively with them at home and abroad. Besides that, he is a member of several chamber orchestras, primarily ensembles specialising in the baroque style music, he is also a member of wind trio "Trio DuBois". In the exceptionally rich repertoire of Jan Thuri there are compositions of all styles and periods including contemporary and also avant-garde ones. The artist is often sought-after for the premiere interpretation of compositions of famous Czech and foreign contemporary composers. Jan Thuri has made a number of outstanding recordings for EMI, Virgo and Thuri Records. One of the most important pieces of work of Jan Thuri in the recent period of time is a collected recording of his father's concertos for oboe and orchestra. Since 2004 Jan Thuri has held oboe and chamber music classes at the Prague State Conservatory and performs master-classes in Europe and Asia (Japan, Korea). Jan Thuri is often invited to take part in juries for international competitions (Chieri, Wroclaw, and Prague).

### **Tomáš Víšek (piano)**

Tomáš Víšek developed his carrier as a solo pianist after graduating from the Prague Conservatory (Professors V. Kameníková and Z. Kožina), and from the Academy of Music Arts in the class of Professors J. Páleníček and Z. Jílek. He has established his reputation performing both famous and lesser-known repertoire, some of which being undeservedly neglected. He has toured throughout the world including Austria, Holland, Switzerland, France, Italy, Egypt, Japan, USA, and has made recordings for radio and television and on CDs. Tomáš Víšek won numerous prizes in international competitions (Hradec Králové, Vienna, Ragusa, Paris), in 2013 he won the 1st prize and CMF Prix at the "Concours Musical de France" in Paris, in 2015 the 1st prize at the competitions „Music Without Limits“ (Druskininkai) and „Grand Prize Virtuoso“ (video-competition), in 2016 and 2023 he won the 1st prize at the „International Master Competition for Music Teachers“ in Warsaw, in 2021 the 1st Prize at the "Golden Classical Music Awards" (with the performance at the Carnegie Hall), in 2022 1st Prize at the "Grand Prize Virtuoso" (with the performance at the Concertgebouw) and in 2024 the Silver Medal at the "Global Music Awards" and the 1st prize at the "World's Best Musicians Competition". His solo recital in the Prague Spring Festival in 1997 and the further performances there in 2002, 2003, 2006, and 2014 were met with high acclaim, as were his interpretation of Gershwin's Rhapsody in Blue in the sold out Rudolfinum concert hall in Prague.

