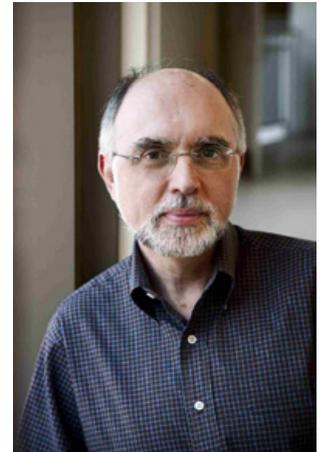


C.L. de Carvalho-Heineken Prize for Cognitive Science 2020 awarded to **Robert Zatorre**



Robert Zatorre

The Royal Netherlands Academy of Arts and Sciences has awarded the C.L. de Carvalho-Heineken Prize for Cognitive Science 2020 to Robert Zatorre, Professor of Neuroscience at McGill University in Canada and researcher at The Neuro (Montreal Neurological Institute-Hospital). Zatorre is receiving the prize for his contribution to the discipline of music cognition. He studies how our nervous system ensures that we can make and enjoy music.

The Heineken Prizes are the Netherlands' most prestigious international science prizes. Every two years the prizes are awarded to five leading researchers. They were instituted in 1964 by Alfred H. Heineken in honour of his father Dr Henry P. Heineken. The 2020 laureates are announced in the first week of June.

Zatorre sets the tone for scientific approach to music

Robert Zatorre has made ground-breaking discoveries about the way people perceive sound, especially speech and music, the most important modes of human communication. Understanding how our brain processes music and speech will teach us more about how the brain works. Zatorre is one of the pioneers in the field of music cognition.

Impact of music

In February this year, leading journal *Science* published Zatorre's findings that the brain's left hemisphere processes the lyrics of songs, while the right hemisphere registers the melody. Researchers have known for a long time that damage to the left hemisphere affects understanding of speech and that damage to the right hemisphere means that you can't hear music properly. Zatorre's group recently discovered why that is, using fMRI scans to show that each hemisphere is specialized for distinct acoustical features of sounds that are relevant for speech or music.

In another much-discussed series of studies, he and his students showed that the reward system in the brain is activated when people listen to emotional music. He subsequently discovered that when people listen to "emotional peak moments" in music — moments when they feel a "shiver of pleasure" — brain cells release the neurotransmitter dopamine.

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The brain releases dopamine during behaviour that is essential for survival, such as eating, but also when listening to music, which is not in fact necessary for survival. Zatorre currently studies whether music can help us cope better with the stress caused by the Covid-19 pandemic.

Application of music processing

Zatorre took the lead in research in this field by combining the application of cognitive neuroscience with the study of music processing. He and his team have worked on the idea that musical training helps people to understand better what another person is saying (i.e. speech processing). He showed that musicians have a stronger coupling of auditory and motor areas than non musicians when processing speech, especially in noisy conditions. These findings might be relevant for alleviating speech perception problems (i.e. problems with processing what another speaker is saying). These problems are more often faced by the elderly and by people with hearing impairments.

About the laureate

Robert Jorge Zatorre was born in Buenos Aires in 1955 and studied psychology and music at Boston University. He also trained as an organist. He held a postdoc position at the Montreal Neurological Institute in Canada and worked as a neuropsychologist at the Montreal Neurological Hospital for several years. In 2006, together with Isabelle Peretz, he founded the International Laboratory for Brain, Music and Sound Research (BRAMS) in Montreal. His lab is dedicated to the neuroscience of auditory cognition, especially music.

Zatorre has received various awards for his work, including the IPSEN Foundation Neuronal Plasticity Prize, the Hugh Knowles Prize, and the Oliver Sacks Award. He has been a member of the Royal Society of Canada since 2017.

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Note for editors

For more information, interviews, and visuals relating to the Heineken Prizes, please contact:

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About the Heineken Prizes

Over the past five decades, the Heineken Prizes have become an internationally renowned distinction. They are the Netherlands' most prestigious prizes in the arts and sciences. Every two years, five internationally renowned researchers and one artist, who lives and works in the Netherlands, are honoured. The work of the laureates offers new perspectives, achieves unexpected breakthroughs, and opens up new avenues for others. Since 2010 future generations are also celebrated. Four highly promising young researchers working at Dutch research institutes receive the Heineken Young Scientists Awards.

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The laureates are selected by juries made up of members of the Royal Netherlands Academy of Arts and Sciences, the Young Academy, and international experts. The Heineken science prizes include a monetary reward of USD 200,000. The artist receives EUR 100,000, half of which is intended for a publication and/or exhibition. The incentive prizes for young scientists are EUR 10,000 each.

The Heineken Prizes were instituted in 1964 by Alfred H. Heineken (1923–2002) in honour of his father Dr Henry P. Heineken (1886–1971). In that year the Dr H.P. Heineken Prize for Biochemistry and Biophysics was awarded for the first time. It has since been joined by five other Heineken Prizes: the Dr A.H. Heineken Prize for Art (1988), for Medicine (1989), for Environmental Sciences (1990) and for History (1990), and the C.L. Carvalho-Heineken Prize for Cognitive Science (2006).

Alfred Heineken's daughter, Charlene L. de Carvalho-Heineken (b. 1954), is continuing this tradition as chair of the Alfred Heineken Fondsen Foundation and the Dr A.H. Heineken Foundation for Art, which finance the prizes.

For more information, go to www.heinekenprizes.org