

November 23, 2021

Dear Members of the Awards Committee of the CSEG

It is our pleasure to nominate our colleague, Dr. Gary Margrave, for the Roy O. CSEG Medal. Gary has made highly significant and fundamental contributions to seismic signal processing and imaging and we believe that he is a superlative candidate for the aforementioned award.

Gary joined Chevron in 1980 and worked 15 years with them in various assignments and locations as a seismic applications specialist. He made many contributions to Chevron's technical and exploration strengths and professional education. In 1995, he joined the University of Calgary as a staff researcher with the CREWES project. Then he was promoted to an academic position and became a full professor. During his last seven years at the University, Gary was the Director of the Consortium for Research in Elastic Wave Exploration Seismology (CREWES), and he kept a focus on teaching seismic processing at both the undergraduate and graduate levels. He supervised more than 30 graduate students (M.Sc. and Ph.D.) who successfully defended their theses during this period. He is very much a student advocate and believed in strong mentorship of his students, many of whom today occupy important positions in industry and academia.

Gary retired from the University of Calgary at the end of 2015 and was appointed Emeritus Professor. After "retirement", he joined Devon Energy (in Calgary) as Senior Geophysical Advisor. Subsequently, in 2019 joined TGS in Calgary as Manager of Research and Development, a position he held until another retirement in 2020.

Gary has made significant contributions to seismic data processing and imaging. We would like to mention a few of them. He was instrumental in launching the POTSI (Pseudodifferential Operator Theory and Seismic Imaging) program that shed light on the connection between pseudo differential operators and propagators adopted for imaging in complex media. POTSI spearheaded collaboration between geophysicists and mathematicians, and it also catalyzed engaging PIMS (Pacific Institute for Mathematical Sciences) imaging workshops in Calgary, Edmonton, and Vancouver. As Site Director for PIMS, Gary initiated the Lunchbox Lecture series which brings together academic and industrial scientists to discuss current research challenges of mutual interest. Gary also introduced Gabor deconvolution as a method to formalize the treatment of

deconvolution in attenuating media. His work in this area is significant because he contributed to a stagnant field from the '70s that was dominated by ad-hoc procedures for controlling wavelet nonstationarity. In recent years, Gary has been interested in the practical application of FWI, including ways of incorporating geological and other information into the formulation of the seismic inverse problem. Gary co-authored (with Michael Lamoureux) a well-known and highly regarded textbook on Seismic Processing through Cambridge University Press. He is also a hard-core Matlab aficionado and wrote most of the Matlab Signal Processing Toolbox that he made widely available to students and researchers across the globe.

From the preceding narrative and the attached CV, we all agree that Gary is an exceptional scientist and educator. His trajectory aligns perfectly with the objectives and terms of the Roy O. Lindseth CSEG Medal. Moreover, we all feel that he has been exemplary in his spanning and personal transitioning from industry to the academy and back. He was able to produce research of academic interest to both geophysicists and mathematicians and, at the same time, retain a strong sense of appreciation for real practical applications that directly help to solve industrial problems. In other words, Gary was able to successfully navigate two different worlds that are often driven by different goals. Gary is a remarkable scientist, but in addition, his modesty always goes hand in hand with collegiality. The latter makes him a member of our society that we are all proud of having as a colleague.

As a closing remark, we fully endorse this nomination, and we hope that the CSEG awards committee will have a strong positive impression of this recommendation.

Sincerely

Mauricio D Sacchi, Professor of Geophysics, University of Alberta

Brian Russell, Vice President, GeoSoftware

Robert Stewart, Cullen Chair in Exploration Geophysics, University of Houston

Daniel Trad, Chair in Exploration Geophysics, University of Calgary

Don Lawton, Professor Emeritus of Geophysics, University of Calgary

Michael Lamoureux, Professor Emeritus of Mathematics, University of Calgary

Kristopher Innanen, Professor of Geophysics, University of Calgary