



## Horácio Carlos Panepucci 1937-2004

It is an honor to have this opportunity to write a foreword to this issue of *The Brazilian Journal of Physics* dedicated to Horácio Carlos Panepucci. My profound regret is that an unexpected and short illness ended his life too soon, such that this recognition of the achievements of our professor was not made while he was still alive. The many articles in this issue already tell how important professor Panepucci was for the Brazilian Physics community working in magnetic resonance. His work was fundamental for the establishment of several groups in Brazil and in other countries dealing with different aspects of magnetic resonance. I first met Horácio in 1976 as an undergraduate student. Horácio was then responsible for the Solid State physics course. At this time he and his students began setting a new laboratory and constructing spectrometers for Electron Paramagnetic Resonance with very limited material resources. In a scenario with severe budget and other restrictions, Professor Panepucci found a number of solutions to keep science alive. The building of scientific instruments was a lesson, and a passion, always taught by Horácio to all his students. It is important to note that at that time it was not easy to obtain research grants and to buy imported equipment even when funding was available. There were many restrictions to use hard currency, even with the necessary funding; it was always necessary to go through a long list of importation licenses and requirements. As a graduate student in São Carlos, I attended classes taught by him and joined his laboratory. His classes were always stimulating and required a lot of work from the students. The atmosphere of his group was challenging and friendly. His research ranged from pure solid state physics to EPR dosimetry, optical spectroscopy in magnetic fields, solid state Nuclear Magnetic Resonance (NMR). More recently, he was deeply involved with NMR for medical imaging (MRI). One of the outstanding achievements of his group was the full development of a whole body 0.5 T scanner that is operating in a local hospital. This project had a great visibility in the medical community and showed how basic research can lead to an important application with social impact. After this major triumph, his research group continued the work on medical images, developing coils and other instruments. A small MRI scanner prototype, suitable for the extremities of the human body, such as arms, legs, hands and feet, has been developed. Horácio also devoted a significant part of his time serving the community through administrative duties at his Institute and the University. He was enthusiastic of the undergraduate teaching laboratories and gave full support for all teaching activities. Horácio trained and influenced many students. His work and his examples will continue through this second generation and their successors. In this special issue of the Brazilian Journal of Physics we have 15 articles dedicated to Horácio, several of them with a touch of his own scientific contribution.

Oswaldo Baffa  
Guest editor  
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## Obituary: Horácio Carlos Panepucci

Professor Horácio Carlos Panepucci passed away on 21 October 2004 after a short period of illness. He was born in 1937, in Argentina, and obtained a degree in Physics at the *Facultad de Ciencias Exactas y Naturales* of the *Universidad Nacional de Buenos Aires*, where he taught until 1966. He resigned his appointment and went abroad in protest after an invasion of the university by police troops, which was ordered by the military government. At this time, he was a member of the *School Consejo Directivo* representing the graduated students.

He settled in Brazil where he obtained his PhD in a joint program between the *Universidade Federal do Rio de Janeiro* and the *Centro Brasileiro de Pesquisas Físicas (CBPF)*, becoming a research fellow at CBPF. In 1970 he joined the recently founded *Instituto de Física e Química de São Carlos (IFQSC)*, University of São Paulo, as an Assistant Professor, and becoming a Professor in 1981. He made relevant contributions to the development of this new Institute. Prof. Panepucci taught theoretical and experimental courses, at undergraduate and graduate levels, with special attention to the creation of the teaching laboratories, to this day a jewel in the Institute. He always made clear his pleasure for, among other joys, being the *Professor Homenageado* (honored professor) by the first class of students graduated from the IFQSC. He was the advisor of 24 graduate students, besides supervising the work of several undergraduate students and post-doctoral associates, most of them nowadays holding relevant positions in academia and industries around the world.

As a researcher, he was a specialist in the field of spectroscopy, mainly Electron Spin Resonance and Nuclear Magnetic Resonance, investigating basic aspects of condensed matter. Later, he moved to medical applications of Physics, in particular Magnetic Resonance Imaging and Magnetic Resonance Spectroscopy. In both areas he is recognized as a pioneer worker in Brazil and in Latin America. His research work on Basic Physics gave rise to about 80 peer-reviewed articles published in scientific journals, books and annals of international conferences, which got more than 200 citations including extensive references in textbooks. In the area of Applied Physics, besides journal articles, the main result was the pioneering development of Magnetic Resonance Imaging and Spectroscopy in Brazil, which resulted in the development of a complete MRI/MRS scanner for clinical use in 1998/99. This system is one of the most striking examples of the transfer of results of basic research to society with direct benefits.

His experience abroad involved positions as Research Assistant at the Physics Department of the University of California (UC) in Berkeley (1967-68), Research Associate at the Physics Department of the UC in Santa Barbara, Visiting Professor at the School of Medicine of the UC in San Francisco, and in universities in Chile, Peru, Venezuela, Argentina and Cuba. For a short time he had a position at the *Centro Brasileiro de Pesquisas Físicas, CBPF*, in Rio de Janeiro. He was also a member of the board of directors of the Academy of Sciences of São Paulo. He was a fellow of the John Simon Guggenheim Foundation, and a research fellow of the Brazilian National Research Council, CNPq. He was a member of the editorial boards of *Crystal Lattice Defects and Amorphous Materials* and the *Magnetic Resonance Reviews*. He served in committees of several scientific organizations: the Brazilian National Research Council, CNPq, the São Paulo State Research Foundation, FAPESP, and the Inter-American Development Bank (PADCT-Program).

Professor Panepucci has also left his distinctive mark on almost every administrative position at his Institute and at the University of São Paulo. During one of his terms as Director of the IFSC, he was appointed by the University Council as a Deputy Rector. In his own words, Panepucci believed that during the 31 years of his scientific career, which almost fully corresponds to the very age of his Institute, he helped his colleagues to make it the magnificent school it is today. He helped to build the fine infra-structure and quality of its programs and research, but mainly contributed to establish the high standards of mutual respect that guides the relationships among its members, and which allows to extract from every individual the best contribution that he can give to the University. Panepucci had a very direct way to approach all sorts of problems, even the most intricate, and a special sense of humor. When he learned about the seriousness of his illness and was informed that many colleagues were concerned and wanted to visit him in the hospital he said "I can't promise I will hold on that long, but I can be assured of a well attended memorial service!" Keeping the sense of humor was the last lesson that our master taught us as he was facing the unavoidable.

We all sincerely mourn his disappearance.

Alberto Tannus and Oswaldo Baffa  
Universidade de São Paulo

## Obituário: Horácio Carlos Panepucci

O Professor Horácio Carlos Panepucci deixou nosso convívio em 21 de Outubro de 2004, após um curto período de doença.

Nascido na Argentina em Janeiro de 1937, obteve sua graduação em Física pela *Facultad de Ciencias Exactas y Naturales* da *Universidad de Buenos Aires*, onde lecionou até 1966. Nessa época, o governo militar de então ordenou a invasão das dependências da universidade, o que motivou seu pedido de demissão e sua saída do país. Nessa época ele era membro do *Consejo Directivo* da Escola, representando os alunos de pós-graduação.

Estabeleceu-se no Brasil, onde obteve seu título de Doutor em Ciências através de um programa conjunto entre a *Universidade Federal do Rio de Janeiro* e o *Centro Brasileiro de Pesquisas Físicas (CBPF)*, tornando-se assistente de pesquisa nesta última instituição. Em 1970 juntou-se ao recém fundado Instituto de Física e Química de São Carlos (IFQSC), Universidade de São Paulo, como Professor Assistente, tornando-se Professor Titular em 1981. O professor Panepucci foi responsável por contribuições marcantes para o desenvolvimento deste Instituto. Ministrou cursos de âmbito teórico e experimental na graduação e pós-graduação, com uma atenção especial à criação dos Laboratórios de Ensino, hoje em dia uma das preciosidades do Instituto. Panepucci sempre que podia manifestava seu prazer em ter sido o Professor Homenageado pela primeira turma de graduandos do IFQSC. Foi orientador de 24 alunos de pós-graduação, bem como supervisor de um número grande de alunos de iniciação científica e de pós-doutores, muitos deles ocupando hoje posições relevantes na academia e indústrias pelo mundo afora.

Como pesquisador, Panepucci se especializou na área de Espectroscopia, principalmente Ressonância Paramagnética Eletrônica e Ressonância Magnética Nuclear, investigando aspectos básicos da matéria condensada. Mais tarde enveredou pelas aplicações médicas da Física, com Imagens e Espectroscopia por Ressonância Magnética (IRM). Em ambas as áreas seu trabalho é reconhecido como pioneiro no Brasil e na América Latina. Sua pesquisa em Física Básica resultou em 80 artigos publicados em revistas científicas, livros e anais de conferências internacionais, que obtiveram mais de 200 citações, que incluem extensas referências em livros didáticos. Na área de Física Aplicada, que conta também com um número significativo de trabalhos em revistas, sua principal contribuição foi o desenvolvimento pioneiro das técnicas de Imagens e Espectroscopia por Ressonância Magnética no Brasil, que resultou no desenvolvimento em 1998/99 de um

sistema completo de IRM para uso clínico. Este sistema constituiu um dos mais vívidos exemplos de transferência de resultados de pesquisa básica com benefícios diretos orientados à sociedade.

Sua experiência no exterior incluiu cargos de Pesquisador Assistente junto ao Departamento de Física da Universidade da Califórnia (UC) em Berkeley (1967-68), Assistente junto ao departamento de Física da UC em Santa Bárbara, Professor Visitante junto à Escola de Medicina da UC em São Francisco, e universidades no Chile, Peru, Venezuela, Argentina e Cuba. Teve uma passagem curta como Assistente no Centro Brasileiro de Pesquisas Físicas (CBPF). Foi membro do comitê diretor da Academia de Ciências do Estado de São Paulo. Foi bolsista da John Simon Guggenheim Foundation, e era bolsista de pesquisa do CNPq. Atuou junto ao corpo editorial de *Crystal Lattice Defects and Amorphous Materials* e de *Magnetic Resonance Reviews*. Durante a sua vida atuou também como assessor para diversas instituições, destacando-se o CNPq, Fapesp e o programa do Banco Inter-Americano de Desenvolvimento (Programa PADCT).

O professor Panepucci deixou também sua marca em quase todas as posições administrativas do seu Instituto e da Universidade de São Paulo, chegando a ocupar a posição de reitor substituto da USP, indicado pelo Conselho Universitário. Nas suas próprias palavras, Panepucci acreditava que nos seus 31 anos de carreira, que coincidem com a própria idade do instituto, ele ajudou seus colegas a fazer a magnífica escola de hoje. Não apenas pela construção de uma excelente infraestrutura e qualidade dos programas de pesquisa, mas principalmente pelo respeito mútuo que rege as relações entre seus membros em todas as categorias, o qual permite extrair de cada indivíduo o que ele tem de melhor para dar à universidade.

Panepucci tinha uma maneira muito direta de abordar todos os problemas, mesmo os mais complicados, e um senso de humor sem dúvida singular. Quando ele finalmente descobriu a gravidade da sua doença e foi informado que muitos colegas ficaram preocupados e que todos gostariam de visitá-lo no hospital, ele disse “ não posso prometer que vou durar o tempo necessário para receber a todos, mas com certeza terei um velório com grande comparecimento”. Manter o senso de humor foi a última lição que nosso mestre nos ensinou diante do inevitável.

Todos nós lamentamos muito o seu desaparecimento.

Alberto Tannús e Oswaldo Baffa