F888 - Trabalho para avaliação

Instruções: Escolher um tema. Utilizar a bibliografia sugerida para situar-se no problema ou escolher o problema. Outra bibliografia também é permitida apenas verificar com o professor caso a bibliografia adicional venha a ser escolhida como bibliografia-base.

Avaliação: apresentação de 15 min. com tempo adicional para perguntas.

Questões a serem respondidas na apresentação: 1) definir o assunto (tema, material, etc), 2) caracterizar o problema, 3) interesse do tema (científico ou aplicado).

Temas:

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2. *Computação quântica em estado sólido* **Não mais disponível** (Marcos F. F. de Oliveira e Peterson G. de Carvalho)
   Demonstration of two-qubit algorithms with a superconducting quantum processor L. DiCarlo, J. M. Chow, J. M. Gambetta, Lev S. Bishop, B. R. Johnson, D. I. Schuster, J. Majer, A. Blais, L. Frunzio, S. M. Girvin & R. J. Schoelkopf, Nature **460**, 240 (2009).
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   Is a room-temperature, solid-state quantum computer mere fantasy?, Marshall Stoneham, Physics 2, 34 (2009).

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4. *Dispositivos Aharonov-Bohm*
   H. Batelaan e A. Tonomura, The Aharonov-Bohm effects: Variatoins on a subtle theme, Physics Today, p.38, September 2009.
   Imry, Y; Webb, RA (1989). "Quantum Interference and the Aharonov-Bohm Effect". Scientific American 260 (4)
   Schwarzschild, B (1986). "Currents in Normal-Metal Rings Exhibit Aharonov–Bohm Effect". Physics Today 39 (1): 17

5. *Efeito Hall quântico*
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   The Fractional Quantum Hall Effect, H. Stormer, Nobel Lecture, 1998.
   Fractional Quantization, R.B. Laughlin, Nobel Lecture, 1998.
   Interplay of disorder and interaction in two-dimensional electron gas in intense magnetic fields, D.C. Tsui, Nobel Lecture, 1998.

6. *Spintrônica*
   Spintronics, D.D. Awschalom, M.E. Flatté, N. Samarth, Scientific American **286**, (2002).
   IBM RD 50-1, Spintronics - A retrospective and perspective

7. *Microscopia Eletrônica - Novos desafios*
   Progress and Perspectives for Atomic-Resolution Electron Microscopy, David J. Smith, Microsc Microanal 11(Suppl 2), 2005
   Progress and perspectives for atomic-resolution electron microscopy, David J. Smith, Ultramicroscopy 108 (2008) 159–166
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Energy, A Report of a Subcommittee to the Basic Energy Science Advisory Committee, May 2009 (Department of Energy) (http://www.science.doe.gov/bes/reports/list.html)

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Peter Grünberg, Layered Magnetic Structures: History, Highlights and Applications, Physics Today, 31, May 2001.
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Spins in few-electron quantum dots, R. Hanson et al., REVIEWS OF MODERN PHYSICS, VOLUME 79, OCTOBER–DECEMBER 2007.

15. *Condensação de Bose-Einstein* **Não mais disponível** (Renata B. Alves e Rodrigo M. Freitas)
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