



Christopher Beaulieu M.D., Ph.D.

Professor of Radiology (Musculoskeletal Imaging) and, by courtesy, of Orthopaedic Surgery

 Curriculum Vitae available Online

CLINICAL OFFICE (PRIMARY)

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Bio

BIO

Christopher F. Beaulieu MD, PhD, is Professor of Radiology, Associate Chair of Education, and former Chief of Musculoskeletal Imaging at Stanford University in Palo Alto, California, USA. He received his MD degree and a PhD degree in Biological Structure from the University of Washington in Seattle, WA. He was a resident and chief resident in radiology at Duke University in Durham, NC, followed by a fellowship in Body Imaging at Stanford. He was a visiting fellow in musculoskeletal imaging (MSK) at the University of California, San Diego. His research has focused on computer graphics, computer-aided diagnosis, artificial intelligence, as well as numerous technical and clinical musculoskeletal imaging and interventional projects. He has a popular YouTube channel that highlights a variety of clinical topics in MSK. His most recent academic work involves development of an open-source teaching and learning software platform “STELLA” – the STanford Electronic Learning Library and Applications system, which went live at Stanford in 2023.

CLINICAL FOCUS

- Diagnostic Radiology
- Radiology
- Musculoskeletal Imaging and Interventions

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Radiology
- Member, Bio-X
- Member, Stanford Cancer Institute

ADMINISTRATIVE APPOINTMENTS

- Chief of Musculoskeletal Imaging, Stanford University Medical Center, (2001-2018)
- Associate Chair of Education, Department of Radiology, (2018- present)

HONORS AND AWARDS

- Alpha Omega Alpha, University of Washington School of Medicine (1987)

- Doctor of Medicine with High Honors, University of Washington (1989)
- Chief Resident in Radiology, Duke University Medical Center (1993)
- Cum Laude Award, Society of Computed Body Tomography and MRI (SCBTMR) (1996)
- Picker AUR Faculty Development Award, Association of University Radiologists (1996)
- RSNA Scholars Award, Radiological Society of North America (1997)
- Cum Laude Award, SCBTMR (1998)
- Cum Laude Award, SCBTMR (1999)
- Hounsfield Award, SCBTMR (2000)
- Fellow Election, Society of Computed Body Tomography and MRI (2000)
- Lauterbur Award (Co-recipient), SCBTMR (2001)
- Lauterbur Award (Co-recipient), SCBTMR (2002)
- Lauterbur Award (Co-recipient), SCBTMR (2003)
- Cum Laude Award (Co-recipient), SCBTMR (2004)
- Cum Laude Award (Co-recipient), SCBTMR (2007)

PROFESSIONAL EDUCATION

- Fellowship: Stanford Health Services - Fellowship/Diagnostic Radiology (1995) CA
- Residency: Duke University Radiology Residency (1994) NC
- Internship: Virginia Mason Medical Center Transitional Year Residency (1990) WA
- Board Certification: Diagnostic Radiology, American Board of Radiology (1994)
- Medical Education: University of Washington School of Medicine (1989) WA
- Fellow, Stanford University , Body Imaging (1995)
- Resident, Duke University , Radiology (1994)
- Ph.D., University of Washington , Biological Structure (1989)
- M.D., University of Washington , Medicine (1989)
- B.S., University of Washington , Chemistry (1982)

LINKS

- STELLA Teaching and Learning Library Software Site: <https://stella.stanford.edu>
- My Personal YouTube Channel: <https://www.youtube.com/chrisbeaulieu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My group works on technological developments in diagnostic imaging. Specifically, we have developed computer graphics methods for evaluation of imaging data such as CT colonography which is now widely used to screen for colonic polyps. As part of that work, we developed a number of supervised learning methods that automatically detect polyps (computer aided detection). More recently, my attention has focused on medical informatics and machine learning. The overall aim is to make medical imaging data much more computationally accessible so that prior instances of imaging diagnoses can help inform and improve diagnosis in new clinical cases. An example of this is the use of Bayesian modeling of bone tumors and automatic generation of differential diagnosis for focal bone lesions. We have also worked on liver lesions and more recently on deep learning methods for diagnosis in knee MRI.

Teaching

COURSES

2023-24

- Introduction to Radiology: RAD 201 (Aut)

2022-23

- Introduction to Radiology: RAD 201 (Aut)

2021-22

- Introduction to Radiology: RAD 201 (Aut)

2020-21

- Diagnostic Radiology and Nuclear Medicine Clerkship: RAD 301A (Aut, Win)
- Introduction to Radiology: RAD 201 (Aut)

Publications

PUBLICATIONS

- **Automating Scoliosis Measurements in Radiographic Studies with Machine Learning: Comparing Artificial Intelligence and Clinical Reports.** *Journal of digital imaging*
Ha, A. Y., Do, B. H., Bartret, A. L., Fang, C. X., Hsiao, A., Lutz, A. M., Banerjee, I., Riley, G. M., Rubin, D. L., Stevens, K. J., Wang, E., Wang, S., Beaulieu, et al
2022
- **Clinical utility of accelerated MAVRIC-SL with robust-PCA compared to conventional MAVRIC-SL in evaluation of total hip arthroplasties.** *Skeletal radiology*
Doyle, Z., Yoon, D., Lee, P. K., Rosenberg, J., Hargreaves, B. A., Beaulieu, C. F., Stevens, K. J.
2021
- **Automated abnormality detection in lower extremity radiographs using deep learning** *NATURE MACHINE INTELLIGENCE*
Varma, M., Lu, M., Gardner, R., Dunmon, J., Khandwala, N., Rajpurkar, P., Long, J., Beaulieu, C., Shpanskaya, K., Li Fei-Fei, Lungren, M. P., Patel, B. N.
2019; 1 (12): 578–83
- **Combined 5-minute double-echo in steady-state with separated echoes and 2-minute proton-density-weighted 2D FSE sequence for comprehensive whole-joint knee MRI assessment.** *Journal of magnetic resonance imaging : JMRI*
Chaudhari, A. S., Stevens, K. J., Sveinsson, B., Wood, J. P., Beaulieu, C. F., Oei, E. H., Rosenberg, J. K., Kogan, F., Alley, M. T., Gold, G. E., Hargreaves, B. A.
2018
- **Deep-learning-assisted diagnosis for knee magnetic resonance imaging: Development and retrospective validation of MRNet.** *PLoS medicine*
Bien, N., Rajpurkar, P., Ball, R. L., Irvin, J., Park, A., Jones, E., Bereket, M., Patel, B. N., Yeom, K. W., Shpanskaya, K., Halabi, S., Zucker, E., Fanton, et al
2018; 15 (11): e1002699
- **Is it painful to be different? Sciatic nerve anatomical variants on MRI and their relationship to piriformis syndrome** *EUROPEAN RADIOLOGY*
Bartret, A. L., Beaulieu, C. F., Lutz, A. M.
2018; 28 (11): 4681–86
- **Deep-learning-assisted diagnosis for knee magnetic resonance imaging: Development and retrospective validation of MRNet** *PLOS MEDICINE*
Bien, N., Rajpurkar, P., Ball, R. L., Irvin, J., Park, A., Jones, E., Bereket, M., Patel, B. N., Yeom, K. W., Shpanskaya, K., Halabi, S., Zucker, E., Fanton, et al
2018; 15 (11)
- **Relevance feedback for enhancing content based image retrieval and automatic prediction of semantic image features: Application to bone tumor radiographs** *JOURNAL OF BIOMEDICAL INFORMATICS*
Banerjee, I., Kurtz, C., Devorah, A., Do, B., Rubin, D. L., Beaulieu, C. F.
2018; 84: 123–35

- **Accelerated three-dimensional multispectral MRI with robust principal component analysis for separation of on- and off-resonance signals** *MAGNETIC RESONANCE IN MEDICINE*
Levine, E., Stevens, K., Beaulieu, C., Hargreaves, B.
2018; 79 (3): 1495–1505
- **Is it painful to be different? Sciatic nerve anatomical variants on MRI and their relationship to piriformis syndrome.** *European radiology*
Bartret, A. L., Beaulieu, C. F., Lutz, A. M.
2018
- **Relevance Feedback for Enhancing Content Based Image Retrieval and Automatic Prediction of Semantic Image Features: Application to Bone Tumor Radiographs.** *Journal of biomedical informatics*
Banerjee, I. n., Kurtz, C. n., Edward Devorah, A. n., Do, B. n., Rubin, D. L., Beaulieu, C. F.
2018
- **Musculotendinous Injuries: Sonographic-guided Interventions** *SEMINARS IN MUSCULOSKELETAL RADIOLOGY*
Wood, J. P., Beaulieu, C. F.
2017; 21 (4): 470–83
- **Computerized Prediction of Radiological Observations Based on Quantitative Feature Analysis: Initial Experience in Liver Lesions.** *Journal of digital imaging*
Banerjee, I., Beaulieu, C. F., Rubin, D. L.
2017; 30 (4): 506-518
- **Detection and prevalence of variant sciatic nerve anatomy in relation to the piriformis muscle on MRI** *SKELETAL RADIOLOGY*
Varenika, V., Lutz, A. M., Beaulieu, C. F., Bucknor, M. D.
2017; 46 (6): 751-757
- **Adaptive local window for level set segmentation of CT and MRI liver lesions.** *Medical image analysis*
Hoogi, A., Beaulieu, C. F., Cunha, G. M., Heba, E., Sirlin, C. B., Napel, S., Rubin, D. L.
2017; 37: 46-55
- **The incidental bone lesion on computed tomography: management tips for abdominal radiologists.** *Abdominal radiology*
Nguyen, M., Beaulieu, C., Weinstein, S., Shin, L. K.
2017
- **Bone Tumor Diagnosis Using a Naïve Bayesian Model of Demographic and Radiographic Features.** *Journal of digital imaging*
Do, B. H., Langlotz, C. n., Beaulieu, C. F.
2017
- **Computerized Prediction of Radiological Observations Based on Quantitative Feature Analysis: Initial Experience in Liver Lesions** *Journal of Digital Imaging*
Banerjee, I.
2017: 506–18
- **Improved Patch-Based Automated Liver Lesion Classification by Separate Analysis of the Interior and Boundary Regions** *IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS*
Diamant, I., Hoogi, A., Beaulieu, C. F., Safdari, M., Klang, E., Amitai, M., Greenspan, H., Rubin, D. L.
2016; 20 (6): 1585-1594
- **Piriformis Syndrome With Variant Sciatic Nerve Anatomy: A Case Report.** *PM & R : the journal of injury, function, and rehabilitation*
Kraus, E., Tenforde, A. S., Beaulieu, C. F., Ratliff, J., Fredericson, M.
2016; 8 (2): 176-179
- **Chondral Rib Fractures in Professional American Football: Two Cases and Current Practice Patterns Among NFL Team Physicians.** *Orthopaedic journal of sports medicine*
McAdams, T. R., Deimel, J. F., Ferguson, J., Beamer, B. S., Beaulieu, C. F.
2016; 4 (2): 2325967115627623-?
- **Conventional versus virtual radiographs of the injured pelvis and acetabulum** *SKELETAL RADIOLOGY*
Bishop, J. A., Rao, A. J., Pouliot, M. A., Beaulieu, C., Bellino, M.

2015; 44 (9): 1303-1308

- **Conventional versus virtual radiographs of the injured pelvis and acetabulum.** *Skeletal radiology*
Bishop, J. A., Rao, A. J., Pouliot, M. A., Beaulieu, C., Bellino, M.
2015; 44 (9): 1303-8
- **Classification of Hypervascular Liver Lesions Based on Hepatic Artery and Portal Vein Blood Supply Coefficients Calculated from Triphasic CT Scans** *JOURNAL OF DIGITAL IMAGING*
Boas, F. E., Kamaya, A., Do, B., Desser, T. S., Beaulieu, C. F., Vasanawala, S. S., Hwang, G. L., Sze, D. Y.
2015; 28 (2): 213-223
- **Content-based image retrieval in radiology: analysis of variability in human perception of similarity.** *Journal of medical imaging (Bellingham, Wash.)*
Faruque, J., Beaulieu, C. F., Rosenberg, J., Rubin, D. L., Yao, D., Napel, S.
2015; 2 (2): 025501-?
- **Ultrasound-guided musculoskeletal interventions in American football: 18 years of experience.** *AJR. American journal of roentgenology*
Dave, R. B., Stevens, K. J., Shivaram, G. M., McAdams, T. R., Dillingham, M. F., Beaulieu, C. F.
2014; 203 (6): W674-83
- **On combining image-based and ontological semantic dissimilarities for medical image retrieval applications.** *Medical image analysis*
Kurtz, C., Depeursinge, A., Napel, S., Beaulieu, C. F., Rubin, D. L.
2014; 18 (7): 1082-1100
- **Predicting Visual Semantic Descriptive Terms From Radiological Image Data: Preliminary Results With Liver Lesions in CT.** *IEEE transactions on medical imaging*
Depeursinge, A., Kurtz, C., Beaulieu, C., Napel, S., Rubin, D.
2014; 33 (8): 1669-1676
- **A hierarchical knowledge-based approach for retrieving similar medical images described with semantic annotations** *JOURNAL OF BIOMEDICAL INFORMATICS*
Kurtz, C., Beaulieu, C. F., Napel, S., Rubin, D. L.
2014; 49: 227-244
- **MR imaging of the brachial plexus.** *Neuroimaging clinics of North America*
Lutz, A. M., Gold, G., Beaulieu, C.
2014; 24 (1): 91-108
- **A picture is worth a thousand words: needs assessment for multimedia radiology reports in a large tertiary care medical center.** *Academic radiology*
Nayak, L., Beaulieu, C. F., Rubin, D. L., Lipson, J. A.
2013; 20 (12): 1577-1583
- **Modeling Perceptual Similarity Measures in CT Images of Focal Liver Lesions** *JOURNAL OF DIGITAL IMAGING*
Faruque, J., Rubin, D. L., Beaulieu, C. F., Napel, S.
2013; 26 (4): 714-720
- **Quantifying the margin sharpness of lesions on radiological images for content-based image retrieval** *MEDICAL PHYSICS*
Xu, J., Nadel, S., Greenspan, H., Beaulieu, C. F., Agrawal, N., Rubin, D.
2012; 39 (9): 5405-5418
- **A Comprehensive Descriptor of Shape: Method and Application to Content-Based Retrieval of Similar Appearing Lesions in Medical Images** *JOURNAL OF DIGITAL IMAGING*
Xu, J., Faruque, J., Beaulieu, C. F., Rubin, D., Napel, S.
2012; 25 (1): 121-128
- **Automatic annotation of radiological observations in liver CT images.** *AMIA ... Annual Symposium proceedings / AMIA Symposium. AMIA Symposium*
Gimenez, F., Xu, J., Liu, Y., Liu, T., Beaulieu, C., Rubin, D., Napel, S.
2012; 2012: 257-263
- **Managing Biomedical Image Metadata for Search and Retrieval of Similar Images** *JOURNAL OF DIGITAL IMAGING*
Korenblum, D., Rubin, D., Napel, S., Rodriguez, C., Beaulieu, C.
2011; 24 (4): 739-748

- **Content-Based Image Retrieval in Radiology: Current Status and Future Directions** *JOURNAL OF DIGITAL IMAGING*
Akgul, C. B., Rubin, D. L., Napel, S., Beaulieu, C. F., Greenspan, H., Acar, B.
2011; 24 (2): 208-222
- **High Hamstring Tendinopathy: MRI and Ultrasound Imaging and Therapeutic Efficacy of Percutaneous Corticosteroid Injection** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Zissen, M. H., Wallace, G., Stevens, K. J., Fredericson, M., Beaulieu, C. F.
2010; 195 (4): 993-998
- **Automated Retrieval of CT Images of Liver Lesions on the Basis of Image Similarity: Method and Preliminary Results** *RADIOLOGY*
Napel, S. A., Beaulieu, C. F., Rodriguez, C., Cui, J., Xu, J., Gupta, A., Korenblum, D., Greenspan, H., Ma, Y., Rubin, D. L.
2010; 256 (1): 243-252
- **Current techniques in the performance, interpretation, and reporting of CT colonography.** *Gastrointestinal endoscopy clinics of North America*
Poullou, P. D., Beaulieu, C. F.
2010; 20 (2): 169-192
- **Imaging and Ultrasound-Guided Steroid Injection of Internal Oblique Muscle Strains in Baseball Pitchers** *AMERICAN JOURNAL OF SPORTS MEDICINE*
Stevens, K. J., Crain, J. M., Akizuki, K. H., Beaulieu, C. F.
2010; 38 (3): 581-585
- **EXTERNAL BEAM RADIATION THERAPY ENHANCES LOCAL CONTROL IN PIGMENTED VILLOUS NODULAR SYNOVITIS** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Horoschak, M., Tran, P. T., Bachireddy, P., West, R. B., Mohler, D., Beaulieu, C. F., Kapp, D. S., Donaldson, S. S.
2009; 75 (1): 183-187
- **Ankle: Isotropic MR Imaging with 3D-FSE-Cube-Initial Experience in Healthy Volunteers** *RADIOLOGY*
Stevens, K. J., Busse, R. F., Han, E., Brau, A. C., Beatty, P. J., Beaulieu, C. F., Gold, G. E.
2008; 249 (3): 1026-1033
- **All-in-one magnetic resonance arthrography of the shoulder in a vertically open magnetic resonance unit** *ACTA RADIOLOGICA*
Vandevenne, J. E., Vanhoenacker, F., Beaulieu, C. F., Bergman, A. G., Pauly, K. B., Dillingham, M. F., Lang, P. K.
2008; 49 (8): 918-927
- **Tibial aperture bone disruption after retrograde versus antegrade tibial tunnel drilling: a cadaveric study** *KNEE SURGERY SPORTS TRAUMATOLOGY ARTHROSCOPY*
McAdams, T. R., Biswal, S., Stevens, K. J., Beaulieu, C. F., Mandelbaum, B. R.
2008; 16 (9): 818-822
- **Stress-related injuries around the lesser trochanter in long-distance runners** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Nguyen, J. T., Peterson, J. S., Biswal, S., Beaulieu, C. F., Fredericson, M.
2008; 190 (6): 1616-1620
- **Colon polyp detection using smoothed shape operators: Preliminary results** *MEDICAL IMAGE ANALYSIS*
Sundaram, P., Zomorodian, A., Beaulieu, C., Napel, S.
2008; 12 (2): 99-119
- **iPad: Semantic annotation and markup of radiological images.** *AMIA ... Annual Symposium proceedings / AMIA Symposium. AMIA Symposium*
Rubin, D. L., Rodriguez, C., Shah, P., Beaulieu, C.
2008: 626-630
- **Polyp enhancing level set evolution of colon wall: Method and pilot study** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Konukoglu, E., Acar, B., Paik, D. S., Beaulieu, C. F., Rosenberg, J., Napel, S.
2007; 26 (12): 1649-1656
- **Abduction and external rotation in shoulder impingement: An open MR study on healthy volunteers - Initial experience** *RADIOLOGY*
Gold, G. E., Pappas, G. P., Blemker, S. S., Whalen, S. T., Campbell, G., McAdams, T. A., Beaulieu, C. F.
2007; 244 (3): 815-822
- **Transparent rendering of intraluminal contrast for 3D polyp visualization at CT colonography** *JOURNAL OF COMPUTER ASSISTED TOMOGRAPHY*

- Shi, R., Napel, S., Rosenberg, J. K., Shin, L. K., Walsh, C. F., Mogensen, M. A., Joshi, A. J., Pankhudi, P., Beaulieu, C. F.
2007; 31 (5): 773-779
- **Isotropic MRI of the knee with 3D fast spin-echo extended echo-train acquisition (XETA): Initial experience** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Gold, G. E., Busse, R. F., Beehler, C., Han, E., Brau, A. C., Beatty, P. J., Beaulieu, C. F.
2007; 188 (5): 1287-1293
 - **Balanced SSFP imaging of the musculoskeletal system** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Gold, G. E., Hargreaves, B. A., Reeder, S. B., Block, W. F., Kijowski, R., Vasawala, S. S., Kornaat, P. R., Bammer, R., Newbould, R., Bangerter, N. K., Beaulieu, C. F.
2007; 25 (2): 270-278
 - **Iterative decomposition of water and fat with echo asymmetry and least-squares estimation (IDEAL) fast spin-echo imaging of the ankle: Initial clinical experience** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Fuller, S., Reeder, S., Shimakawa, A., Yu, H., Johnson, J., Beaulieu, C., Gold, G. E.
2006; 187 (6): 1442-1447
 - **Stress fractures in athletes.** *Topics in magnetic resonance imaging*
Fredericson, M., Jennings, F., Beaulieu, C., Matheson, G. O.
2006; 17 (5): 309-325
 - **T-1- and T-2-weighted fast spin-echo imaging of the brachial plexus and cervical spine with IDEAL water-fat separation** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Reeder, S. B., Yu, H., Johnson, J. W., Shimakawa, A., Brittain, J. H., Pelc, N. J., Beaulieu, C. F., Gold, G. E.
2006; 24 (4): 825-832
 - **Ligament and tendon injury to the elbow: clinical, surgical, and imaging features.** *Topics in magnetic resonance imaging*
Saliman, J. D., Beaulieu, C. F., McAdams, T. R.
2006; 17 (5): 327-336
 - **Articular cartilage of the knee: Rapid three-dimensional MR imaging at 3.0 T with IDEAL balanced steady-State free precession - Initial experience** *RADIOLOGY*
Gold, G. E., Reeder, S. B., Yu, H., Kornaat, P., Shimakawa, A. S., Johnson, J. W., Pelc, N. J., Beaulieu, C. F., Brittain, J. H.
2006; 240 (2): 546-551
 - **"Flying through" and "flying around" a PET/CT scan: Pilot study and development of 3D integrated F-18-FDG PET/CT for virtual bronchoscopy and colonoscopy** *JOURNAL OF NUCLEAR MEDICINE*
Quon, A., Napel, S., Beaulieu, C. F., Gambhir, S. S.
2006; 47 (7): 1081-1087
 - **Advanced magnetic resonance imaging of articular cartilage** *ORTHOPEDIC CLINICS OF NORTH AMERICA*
Gold, G. E., Hargreaves, B. A., Stevens, K. J., Beaulieu, C. F.
2006; 37 (3): 331-?
 - **CT colonography: Influence of 3D viewing and polyp candidate features on interpretation with computer-aided detection** *RADIOLOGY*
Shi, R., Schraedley-Desmond, P., Napel, S., Olcott, E. W., Jeffrey, R. B., Yee, J., Zalis, M. E., Margolis, D., Paik, D. S., Sherbondy, A. J., Sundaram, P., Beaulieu, C. F.
2006; 239 (3): 768-776
 - **Articular cartilage of the knee: Evaluation with fluctuating equilibrium MR imaging - Initial experience in healthy volunteers** *RADIOLOGY*
Gold, G. E., Hargreaves, B. A., Vasawala, S. S., Webb, J. D., Shimakawa, A. S., Brittain, J. H., Beaulieu, C. F.
2006; 238 (2): 712-718
 - **In vivo anatomy of the Neer and Hawkins sign positions for shoulder impingement** *JOURNAL OF SHOULDER AND ELBOW SURGERY*
Pappas, G. P., Blemker, S. S., Beaulieu, C. F., McAdams, T. R., Whalen, S. T., Gold, G. E.
2006; 15 (1): 40-49
 - **The flexor hallucis longus: Tenographic technique and correlation of Imaging findings with surgery in 39 ankles** *RADIOLOGY*
Na, J. B., Bergman, A. G., Oloff, L. M., Beaulieu, C. F.
2005; 236 (3): 974-982

- **Iterative decomposition of water and fat with echo asymmetry and least-squares estimation (IDEAL): Application with fast spin-echo imaging** *MAGNETIC RESONANCE IN MEDICINE*
Reeder, S. B., Pineda, A. R., Wen, Z. F., Shimakawa, A., Yu, H. Z., Brittain, J. H., Gold, G. E., Beaulieu, C. H., Pelc, N. J.
2005; 54 (3): 636-644
- **MRI findings of femoral diaphyseal stress injuries in athletes** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Hwang, B., Fredericson, M., Chung, C. B., Beaulieu, C. F., Gold, G. E.
2005; 185 (1): 166-173
- **Controversies in protocol selection in the Imaging of articular cartilage** *SEMINARS IN MUSCULOSKELETAL RADIOLOGY*
Gold, G. E., Hargreaves, B. A., Reeder, S. B., Vasawala, S. S., Beaulieu, C. F.
2005; 9 (2): 161-172
- **High hamstring tendinopathy in runners - Meeting the challenges of diagnosis, treatment, and rehabilitation** *PHYSICIAN AND SPORTSMEDICINE*
Fredericson, M., Moore, W., Guillet, M., Beaulieu, C.
2005; 33 (5): 32-43
- **Rapid musculoskeletal MRI with phase-sensitive steady-state free precession: Comparison with routine knee MRI** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Vasawala, S. S., Hargreaves, B. A., Pauly, J. M., Nishimura, D. G., Beaulieu, C. F., Gold, G. E.
2005; 184 (5): 1450-1455
- **Driven equilibrium magnetic resonance imaging of articular cartilage: Initial clinical experience** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Gold, G. E., Fuller, S. E., Hargreaves, B. A., Stevens, K. J., Beaulieu, C. F.
2005; 21 (4): 476-481
- **Spectrum of MRI findings in femoral diaphyseal stress injuries** *105th Annual Meeting of the American-Roentgen-Ray-Society*
Hwang, B. J., Fredericson, M., Chung, C. B., Beaulieu, C., Gold, G.
AMER ROENTGEN RAY SOC.2005: 107-
- **The flexor hallucis longus: Tenographic technique and correlation of imaging findings with surgery in 39 ankles** *105th Annual Meeting of the American-Roentgen-Ray-Society*
Na, J., Bergman, A. G., Oloff, L. M., Yoo, J., Beaulieu, C. F.
AMER ROENTGEN RAY SOC.2005: 111-12
- **Musculoskeletal MRI at 3.0T: Initial clinical experience** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Gold, G. E., Suh, B., Sawyer-Glover, A., Beaulieu, C.
2004; 183 (5): 1479-1486
- **Registration of central paths and colonic polyps between supine and prone scans in computed tomography colonography: Pilot study** *MEDICAL PHYSICS*
Ping, L., Napel, S., Acar, B., Paik, D. S., Jeffrey, R. B., Beaulieu, C. F.
2004; 31 (10): 2912-2923
- **Automatic detection and classification of hypodense hepatic lesions on contrast-enhanced venous-phase CT** *MEDICAL PHYSICS*
Bilello, M., Gokturk, S. B., Desser, T., Napel, S., Jeffrey, R. B., Beaulieu, C. F.
2004; 31 (9): 2584-2593
- **Musculoskeletal MRI at 3.0T: Relaxation times and image contrast** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Gold, G. E., Han, E., Stainsby, J., Wright, G., Brittain, J., Beaulieu, C.
2004; 183 (2): 343-351
- **Surface normal overlap: A computer-aided detection algorithm, with application to colonic polyps and lung nodules in helical CT** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Paik, D. S., Beaulieu, C. F., Rubin, G. D., Acar, B., Jeffrey, R. B., Yee, J., Dey, J., Napel, S.
2004; 23 (6): 661-675
- **Computed tomography colonography - Feasibility of computer-aided polyp detection in a "First reader" paradigm** *88th Scientific Assembly and Annual Meeting of the Radiological-Society-of-North-America*
Mani, A., Napel, S., Paik, D. S., Jeffrey, R. B., Yee, J., Olcott, E. W., Prokesch, R., Davila, M., Schraedley-Desmond, P., Beaulieu, C. F.
LIPPINCOTT WILLIAMS & WILKINS.2004: 318-26

- **Advanced MR imaging of the shoulder: dedicated cartilage techniques.** *Magnetic resonance imaging clinics of North America*
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