PART 4: ADVANCED DIAGNOSTICS, MODELS, & DESIGN.

Low-Temperature Fuel Cells.

40. Direct three-dimensional visualization and morphological analysis of Pt particles supported on carbon by transmission electron microtomography (T. Ito, U. Matsuwaki, Y. Otsuka, G. Katagiri, M. Kato, K. Matsubara, Y. Aoyama, and H. Jinnai).

41. Design approaches for determining local current and membrane resistance in polymer electrolyte fuel cells (PEFCs) (S. A. Freunberger, M. Reum, and F. N. B?uchi).

42. Heat and water transport models for polymer electrolyte fuel cells (U. Pasaogullari).

43. Proton exchange membrane fuel cell (PEMFC) down-the-channel performance model (W. Gu, D. R. Baker, Y. Liu, and H. A. Gasteiger).

44. Use of neutron imaging for proton exchange membrane fuel cell (PEMFC) performance analysis and design (T. A. Trabold, J. P. Owejan, J. J. Gagliardo, D. L. Jacobson, D. S. Hussey, and M. Arif).

45. Local transient techniques in polymer electrolyte fuel cell (PEFC) diagnostics (I. A. Schneider and G. G. Scherer).

46. Proton exchange membrane fuel cell (PEMFC) flow-field design for improved water management (J. S. Allen, S. Y. Son, S. H. Collicott).

47. Performance during start-up of proton exchange membrane (PEM) fuel cells at subfreezing conditions (E. L. Thompson, W. Gu, and H. A. Gasteiger).

48. Performance impact of cationic contaminants (B. S. Pivovar, B. Kienitz, T. Rockward, F. Uribe, and F. Garzon).

49. Modeling the impact of cation contamination in a polymer electrolyte membrane fuel cell (T. A. Greszler, T. E. Moylan, and H. A. Gasteiger).

50. Performance modeling and cell design for high concentration methanol fuel cells (C. E. Shaffer and C. Y. Wang).

51. Design concepts and durability challenges for mini fuel cells (Shimshon Gottesfeld).

High-Temperature Fuel Cells.

52. New diagnostic methods for the polarized state (T. Kawada).

53. Electrochemical impedance spectroscopy as diagnostic tool (S. H. Jensen, J. Hjelm, A. Hagen, and M. Mogensen).

54. Observation and modeling of thermal stresses in cells and cell stacks (H. Yakabe).

PART 5: PERFORMANCE DEGRADATION.

Low-Temperature Fuel Cells.

55. Carbon-support corrosion mechanisms and models (K. G. Gallagher, R. M. Darling, and T. F. Fuller).