

JAY P. KESAN

A. PUBLICATIONS & PRESENTATIONS IN LAW

LAW REVIEW PUBLICATIONS: (all publications can be found on the Social Science Research Network at <http://www.ssrn.com>)

1. *Prisoners' Substantive Rights* (revised and updated), 24th Annual Review of Criminal Procedure, 83 GEO. L.J. 1461 (1995) (with S.L. Teicher).

2. *An Autopsy of Scientific Evidence in a Post-Daubert World*, 84 GEO. L.J. 1985 (1996).
Cited extensively in the law reviews and by several State Supreme Courts including Alabama, Alaska, Connecticut, Nebraska and Oregon when deciding the admissibility of scientific evidence.

3. *A Critical Examination of the Post-Daubert Scientific Evidence Landscape*, 52 FOOD & DRUG L.J. 225 (1997) (Winner of the 1995-96 H. Thomas Austern National Legal Writing Competition).

4. *Encouraging Firms to Police Themselves: Strategic Prescriptions to Promote Corporate Self-Auditing*, 2000 U. ILL. L. REV. 155 (2000) (solicited symposium article).
Listed in the Top 10 Most Read Articles in the Environmental Law & Policy database in the Social Science Research Network between Mar. and May 2001.

5. *Patents As Incomplete Contracts: Aligning Incentives for R&D Investment with Incentives to Disclose Prior Art*, with M. Banik, 2 WASH. U. J. OF L. & POL'Y 23 (2000) (solicited Patent Law symposium article).

Listed in the Top 10 Most Read Articles in the Intellectual Property database in the Social Science Research Network between Mar. and May 2001.

6. *Fool Us Once Shame On You - Fool Us Twice Same On Us: What We Can Learn from the Privatizations of the Internet Backbone Network and the Domain Name System*, with R. Shah, 79 WASH. UNIV. L.Q. 89 (2001) .

Listed in the Top 10 Most Read Articles in the Legal Scholarship Network in the Social Science Research Network; The Most Read Article in the Law & Economics database and the Cyberspace Law database between Mar. and May 2001.

7. *Foreword to the Symposium: Intellectual Property Challenges in the Next Century*, with T. Ulen, 2001 U. ILL. L. REV. 57 (2001).

8. *Cyber-Working or Cyber-Shirking? A First Principles Examination of Electronic Privacy in the Workplace*, 54 FLA. L. REV. 289 (2002).

9. *Carrots and Sticks to Create a Better Patent System*, 17 BERKELEY TECH. L.J. 763 (2002) (Invited contribution to Symposium on Patent System Reform).

10. *U.S. Plant Variety Protection: Sound and Fury...*, with M. Janis, 39 HOUS. L. REV. 727 (2002) (Invited contribution to Symposium on The Future of Patent Law).

11. *Optimizing Internet Regulation*, with A. Gallo, submitted to the law reviews (2003).

12. *Shaping Code*, with R. Shah, submitted to the law reviews (2003).

13. *What Do Patents Purchase?: In Search of Optimal Ignorance in the Patent Office*, with Shubha Ghosh, submitted to the law reviews (2003).

14. *Private Internet Governance*, to be published in the LOYOLA UNIV. CHICAGO L.J. (2003) (Invited contribution to Symposium on Technology and Governance: How the Internet has Changed Our Conception of Governance and Institutions).

15. *Weed-Free I.P.: The Supreme Court, Intellectual Property Interfaces and the Problem of Plants*, with M. Janis, draft available, work-in-progress.

16. *From Informational Privacy to Biomedical Research: Touting Verifiable Self-Enforcement (VSE) as a New Form of Governance*, draft available, presented at Faculty Workshops in Georgetown, Duke, Illinois, and DePaul.

17. *Getting It Right At the Outset: Granting Patents Commensurate with Innovation*, manuscript under preparation.

PEER-REVIEWED LEGAL PUBLICATIONS: (all publications can be found on the Social Science Research Network at <http://www.ssrn.com>)

1. *The Relationship Between Intellectual Property Protection and Biotechnology B A Multi-Disciplinary Perspective*, 44 AMERICAN BEHAVIORAL SCIENTIST 464 (Nov. 2000) (Invited paper).

2. *Intellectual Property Protection for Plant Innovation: Unresolved Issues After J.E.M. v. Pioneer*, with M. Janis, 20 NATURE BIOTECHNOLOGY 1161 (2002).

3. *Designing an Optimal Intellectual Property System for Plants: A U.S. Supreme Court Debate*, with M. Janis, 19 NATURE BIOTECHNOLOGY 981 (2001).

4. *Incorporating Societal Concerns into Communication Technologies*, with R. Shah, IEEE TECHNOLOGY & SOCIETY, to be published (2003).

5. *Do We Need the Corporate Self-Evaluative Privilege?*, with B. Mishra, under review at J. OF LAW, ECON. & ORG. (2003).

6. *Producing Code: A Political Economy of Communication Technologies*, with R. Shah, submitted to CRITICAL STUDIES IN MEDIA COMMUNICATION, (2003).

7. *Nurturing Software: How Societal Institutions Shape the Development of Software*, with R. Shah, submitted to the COMMUNICATIONS OF THE ACM, (2003).

CASEBOOKS & TREATISES:

1. Boss, Fitzgerald, Kesan, and Spanogle, **CASES AND MATERIALS ON ELECTRONIC COMMERCE**,[®] West Publishing Co., forthcoming, Dec. 2003.

2. **THE COMMERCIAL LAW OF INTELLECTUAL PROPERTY**, Aspen Publishing Co., 2003 Cum. Supp. (with P. Alces, D. Frisch and H. See)

BOOK CHAPTERS:

1. *Internet Service Provider Liability in the Digital Millennium Copyright Act*, in **TRANSNATIONAL CYBERSPACE LAW** (Makoto Ibusuki, ed., Japanese edition -- Nippon Hyoron-sha 2000; English edition -- Hart Publishing 2001).

2. *Personal Jurisdiction in Cyberspace*, in *Online Casebook on Cyberspace Law* at <http://www.cyberspacelaw.org>.

3. *History of Civil Rights in Ohio*, in **CIVIL RIGHTS IN THE UNITED STATES** (Waldo E. Martin, Jr. & Patricia Sullivan eds., Macmillan 2000) (encyclopedia article).

4. *A First Principles Examination of Electronic Privacy in the Workplace*, in **ON-LINE RIGHTS FOR EMPLOYEES IN THE INFORMATION SOCIETY** (Roger Blanpain ed., Kluwer Int'l 2002).

CONFERENCES/SYMPOSIA:

AMaking the Regulated Regulate: Prescriptions to Cultivate Environmental Self-Auditing,@Symposium on Innovations in Environmental Policy, April 16, 1999, University of Illinois at Urbana-Champaign, Champaign, Illinois (symposium article published in the U. ILL. L. REV.).

AThe Relationship Between Patents and R&D Investment: Biotechnology Patents as Incomplete Contracts,@NE-165 Conference Proceedings on Transitions in AgBiotech: Economics of Strategy and Policy, June 24-25, 1999, Washington DC.

APatents As Incomplete Contracts: Aligning Incentives for R&D Investment with Incentives to Disclose Prior Art,@2000 Heart of America Patent Law and Policy Conference, Re-engineering Patent Law: The Challenge of New Technologies, Mar. 31 - Apr. 1, 2000, Washington University School of Law, St. Louis, MO (symposium article published by the WASH. UNIV. J. OF L. & POL'Y).

APatently Appropriate or Patently Absurd: The Patenting of Software Implementations of Business Methods on the Internet,@2000 Patent and Intellectual Property Summer Institute, University of Washington, July 24-28, 2000, Seattle, Washington.

Commentator, GWU-Oracle Conference on E-Commerce & E-Quivalence: Defining the Proper Scope of Internet Patents, George Washington University Law School, Oct. 27, 2000, Washington, DC.

AA First Principles Examination of Electronic Privacy in the Workplace,@Conference on Online Rights for Online Workers in the Information Society B Use of E-mail and Internet at Work, Nov. 13, 2000, Brussels, Belgium.

ABusiness Method Patents: Current Status and Future Recommendations,@2000 Tokyo Internet Law Forum, Dec. 18, 2000, Tokyo, Japan.

AA Bird's Eye View of Intellectual Property Protection for IT and E-Commerce Developments in India,@Symposium on Information Technology in South Asia, the Middle East and Latin America: Progress, Problems, and Prospects, University of Illinois, April 28, 2000, Urbana, Illinois.

Getting it Right at the Outset: Granting Patents Commensurate with Innovation, First Annual IP Scholars Conference, DePaul University College of Law, Aug. 9-10, 2001, Chicago, Illinois.

The Role of Institutions in the Design of Communication Technologies, with R. Shah, Internet Research 2.0, Second Int'l Conf. of the Assoc. of Internet Researchers (AoIR), Oct. 10-14, 2001, Minneapolis, Minnesota.

The Role of Institutions in the Design of Communication Technologies, with R. Shah, 29th Research Conference on Communication, Information and Internet Policy (TPRC), Oct. 27-29, 2001, Alexandria, Virginia.

Culture Clash or Marriage Made in Heaven: Information Technology and Legal Education in the U.S., Kagoshima Conference on Information Technology and Legal Education, Nov. 3, 2001, Kagoshima, Japan (invited keynote address).

Speaker and Panelist, Conference on Biotechnology R&D Policy, Food & Agriculture Committee, National Policy Association (NPA), Nov. 28, 2001, Washington, DC.

Carrots and Sticks to Create a Better Patent System," Conference on Patent System Reform, Feb. 28-Mar. 2, 2002, UC-Berkeley, California (symposium article published in the BERKELEY TECH. L.J.).

Commentator, GWU-Oracle-ANSI Conference on Patents and Standards-Setting, George Washington University Law School, Apr. 19, 2002, Washington, DC.

"U.S. Plant Variety Protection: Sound and Fury..." with M. Janis, Symposium on the Future of Patent Law, University of Houston, May 31, 2002, Santa Fe, New Mexico (symposium article published in the Hous. L. REV.).

"Incorporating Societal Concerns into Communication Technologies," with R. Shah, Int'l Symposium on Technology and Society, June 6-8, 2002, Raleigh, North Carolina.

Speaker and Panelist, Panel on the Implications of *Festo v. Shoketsu*, Fourth Federal Circuit Bench and Bar Conference, June 29, 2002, San Diego, California.

"Intellectual Property and Plant Innovation," National Academy of Sciences, Board on Science, Technology and Economic Policy, Sept. 27, 2002, Washington, DC.

"Governance Characteristics of "Code": The Role of Transparency, Defaults and Standards," with R. Shah, 30th Research Conference on Communication, Information and Internet Policy (TPRC), Sept. 27-29, 2002, Alexandria, Virginia.

"Neither Bottom-Up Nor Top-Down: A Tacit Public-Private Cooperative Solution for Internet Regulation," with A. Gallo, 30th Research Conference on Communication, Information and Internet Policy (TPRC), Sept. 27-29, 2002, Alexandria, Virginia.

"Privatization of the Internet's Backbone Network," with R. Shah, Internet Research 3.0, Third Int'l Conf. of the Assoc. of Internet Researchers (AoIR), Oct. 14-16, 2002, Maastricht, Netherlands.

"Shaping the Development of Information Technologies to Address Societal Concerns," with R. Shah, Internet Research 3.0, Third Int'l Conf. of the Assoc. of Internet Researchers (AoIR), Oct. 14-16, 2002, Maastricht, Netherlands.

"Intellectual Property and Plant Innovation," 2002 ATRIP (International Association for the Advancement of Teaching and Research in Intellectual Property Teaching) Congress, October 6-8, 2002, New Delhi, India.

"The Role of the Open Source Movement in the Development of Communication Technologies," with R. Shah, presented at the National Communication Association Conference, Nov. 21, 2002, New Orleans.

"Internet Markets: Promises and Pitfalls," EU's GoDigital Conference: Chance for Business, Challenge for Law, Nov. 22-24, Salerno, Italy.

Speaker and Panelist, Conference on E-Rulemaking: New Directions for Technology and Regulation, Harvard University Kennedy School of Government, Jan. 21-22, 2003, Cambridge, Massachusetts.

Speaker and Panelist, "Never Take Away a Man's Rice Bowl: The Ethics of Acquiring Patent or Trade Secret Ownership of Staple Food Genomes," ABA Mid-Year Meeting, Feb. 7, 2003, Seattle, Washington.

"IP Protection for Plant Innovation: What *J.E.M. v. Pioneer* Did Not Resolve," NC-1003 Conference on Intellectual Property and Agricultural Research: Implications for Public and Private Sectors, Feb. 28-Mar. 1, 2003, New Brunswick, New Jersey.

ACADEMIC SEMINARS & LECTURES:

ACreating Incentives for Self-Policing,@Program of Environmental and Resource Economics (PERE) Seminar Series, UIUC, Jan. 28, 1999.

ACreating Incentives for Self-Policing,@UIUC, College of Law, Faculty Seminar Series, Feb. 5, 1999.

Participated in IEEE Panel on Engineering Ethics, Intellectual Property and the New Information Technologies, Case Western Reserve University, Mar. 24, 1999, published in IEEE Spectrum Magazine, pp. 29-37, Aug. 1999.

ACreating Incentives for Self-Policing,@Duke University School of Law, Faculty Seminar, Mar. 26, 1999.

Alnternet Service Provider (ISP) Liability in the Digital Millennium Copyright Act (DMCA),@UIUC Graduate School of Library and Information Sciences (GSLIS) Faculty Seminar Series, Sept. 20, 1999.

Alntellectual Property Issues in Developing Countries,@UIUC Program on South Asian and Middle Eastern Studies (PSAMES) Seminar, Sept. 28, 1999.

AlHate Speech on the Internet: Must We Turn the Other Cheek?@UIUC Department of African American Studies Faculty Seminar Series, Oct. 4, 1999.

AlAn Economic Analysis of Patents as Incomplete Contracts,@UIUC College of Law Faculty Seminar Series, Oct. 12, 1999.

AlRegulation of the Internet and Electronic Commerce,@UIUC Graduate School of Business, MBA Faculty Seminar, Oct. 20, 1999.

AlRealigning Patent Law with R&D Investment B Patents as Incomplete Contracts,@University of Illinois Institute of Government and Public Affairs (IGPA) Faculty Seminar Series, Mar. 2, 2000.

AFrom Internet Regulation to Law Firm Ethics: Verifiable Self-Enforcement (VSE) as a New Regulatory Paradigm,@ College of William & Mary School of Law, Faculty Enrichment Series, Mar. 15, 2000.

AFrom Internet Regulation to Law Firm Ethics: Verifiable Self-Enforcement (VSE) as a New Regulatory Paradigm,@ University of Illinois at Chicago, Institute of Government and Public Affairs (IGPA) Faculty Seminar Series, Mar. 23, 2000.

APatents As Incomplete Contracts: Aligning Incentives for R&D Investment with Incentives to Disclose Prior Art,@ Berkeley Center for Law & Technology Speaker Series, University of California, Berkeley, Apr. 20, 2000.

APatents As Incomplete Contracts,@ Strategy Group, College of Business, University of Illinois, Faculty Seminar Series, April 28, 2000.

AVerifiable Self-Enforcement (VSE) as a New Form of Governance,@ Conference of Asian & Pacific American Law Faculty, University of Hawaii, Works-In-Progress Series, June 2-4, 2000.

AFool Us Once Shame On You - Fool Us Twice Same On Us: What We Can Learn from the Privatizations of the Internet Backbone Network and the Domain Name System,@ UIUC College of Law Faculty Seminar Series, Oct. 24, 2000.

AIIntellectual Property Issues in Distance Education,@ Luncheon Speaker, Faculty Retreat, Center for Educational Technologies (CET), University of Illinois, Nov. 3, 2000.

AFrom Internet Regulation to Law Firm Ethics: Verifiable Self-Enforcement (VSE) as a New Form of Governance,@ DePaul University College of Law, Faculty Seminar Series, Nov. 29, 2000.

APatently Appropriate or Patently Absurd: The Patenting of Software Implementations of Business Methods on the Internet,@ Presentation to Research Center for Advanced Science & Technology (RCAST) Intellectual Property Group and Industry, University of Tokyo, Dec. 14, 2000, Tokyo, Japan.

AA First Principles Examination of Electronic Privacy in the Workplace,@ Japan Institute of Labour (JIL), Dec. 19, 2000, Tokyo, Japan.

ABusiness Method Patents: Current Status and Future Recommendations,@ Institute of Intellectual Property (IIP), Dec. 20, 2000, Tokyo, Japan.

AFool Us Once Shame On You - Fool Us Twice Same On Us: What We Can Learn from the Privatizations of the Internet Backbone Network and the Domain Name System,@ IGPA Faculty Retreat, University of Illinois, May 15, 2001, Utica, Illinois.

ABusiness Method Patents and Technology Commercialization,@ Speaker and Panelist, High Technology Protection Summit, University of Washington Summer Institute on Intellectual Property, July 20, 2001, Seattle, Washington.

AFrom Informational Privacy to Biomedical Research: Verifiable Self-Enforcement as a New Form of Governance,@ Georgetown University Law Center Faculty Workshop Series, Sept. 25, 2001, Washington, DC.

AGetting it Right at the Outset: Granting Patent Rights Commensurate with Innovation,@ University of San Diego College of Law Faculty Seminar, Sept. 28, 2001, San Diego, California.

AGetting it Right at the Outset: Granting Patent Rights Commensurate with Innovation,@ Presentation to Research Center for Advanced Science & Technology (RCAST) Intellectual Property Group and Industry, University of Tokyo, Nov. 5, 2001, Tokyo, Japan.

ACulture Clash or Marriage Made in Heaven: Information Technology and Legal Education in the U.S.,@ Presentation to Research Center for Advanced Science & Technology (RCAST) Intellectual Property Group and Industry, University of Tokyo, Nov. 5, 2001, Tokyo, Japan.

ALaw and Economics of New Technology,@ Panel Presentation, AALS Section on Law and Economics, AALS Annual Meeting, Jan. 2-6, 2002, New Orleans, Louisiana.

AHow To Technology,@ Panel Presentation in AALS Workshop on ADo You Know Where Your Students Are? Langdell Logs on to the 21st Century,@ AALS Annual Meeting, Jan. 2-6, 2002, New Orleans, Louisiana.

APatented Technologies, World Health and World Hunger,@ Mid-Atlantic Conf. of People of Color, Jan. 31-Feb. 2, 2002, Georgetown University Law Center, Washington, DC.

AIIntellectual Property LawBGlobal Challenges,@ The 2002 Distinguished Faculty and Alumni International Lecture Series, AEurope in the 21st CenturyBNew Fears, New Alliances,@ EU Center of UIUC, University Club, Feb. 27, 2002, Chicago, Illinois.

AIIntellectual Property and Agricultural Biotechnology,@ Meeting of North Central Agricultural Experimental Station Directors, Mar. 13, 2002, Baltimore, Maryland.

AFrom Informational Privacy to Biomedical Research: Verifiable Self-Enforcement (VSE) as a New Form of Governance,@ University of Illinois at Urbana-Champaign, Institute of Government and Public Affairs (IGPA) Faculty Seminar Series, Apr. 30, 2002.

"*Festo v. Shoketsu*. Bonanza for Patent Litigators and Headaches for Litigants," Presentation to Research Center for Advanced Science & Technology (RCAST) Intellectual Property Group and Industry, University of Tokyo, June 18, 2002, Tokyo, Japan.

ACarrots and Sticks to Create a Better Patent System," Northwestern University Law School Faculty Workshop, July 11, 2002, Chicago, Illinois.

"U.S. Plant Variety Protection: Sound and Fury..." UIUC College of Law Faculty Seminar Series, Sept. 26, 2002.

Speaker & Moderator of kick-off panel for year-long series on "Silicon Carbon, Culture: Combining Codes Through the Arts, Humanities and Technology," UIUC, Krannert Art Museum, Nov. 7, 2002, Champaign, Illinois.

"An Empirical Exploration of Patent and Plant Variety Protection for Plant Innovation," IP Colloquium, University of Washington School of Law, Feb. 10, 2003, Seattle Washington.

"The Private and Social Costs of Bad Patents: Why Bad Patents Survive in the Market and How Should We Change?" IP Colloquium, Boston University College of Law, Feb. 24, 2003, Boston, Massachusetts.

OTHER TALKS:

ATechnology as Law in Cyberspace,@ Luncheon Address, UIUC College of Engineering Advisory Board Annual Meeting, Sept. 16, 1999.

AFree Expression in Cyberspace,@ Focus 580 Featured Guest with Host David Inge, WILL-AM-FM, 10:00-11:00 a.m., Feb. 17, 1999.

AFree Expression in Cyberspace,@ University YMCA Friday Forum: Spring 1999, From Frankenstein to Sliced Bread: Empowering the Human in a Technological Society, Feb. 19, 1999.

Moderator, Frank Wu vs. Dinesh D-Souza, ADebate: Abolish Affirmative Action,@ Lincoln Hall Theater, University of Illinois, Mar. 8, 1999.

Speaker, IGPA Policy Sounding, AThe Internet: Can It Be Regulated?@ 1999 (with T. Ulen).

APatent Protection for Internet-Related Software Inventions,@ John Marshall School of Law, Lunch & Learn Series, Mar. 22, 2000.

AThe Internet & E-Commerce: Culture Clash or a Marriage Made in Heaven?@ 25th Anniversary, Executive-MBA Program, University of Illinois, May 5, 2000.

AState Sales Taxation of E-Commerce,@ DuKane Valley Municipal Council, Illinois, June 14, 2000.

APersonal Jurisdiction in Cyberspace,@ Illinois State Bar Association (ISBA) Presentation, Chicago, Sept. 15, 2000 & Bloomington, Sept. 19, 2000.

AState Sales Taxation of E-Commerce,@ IGPA New Legislators= Workshop, Luncheon Speaker, Springfield, IL, Nov. 28, 2000.

Speaker, IGPA Policy Sounding, ASales Tax: How to Apply It to E-Commerce,@ 2001 (with F. Giertz).

AIntellectual Property and the Internet,@ Focus 580 Featured Guest with Host David Inge, WILL-AM-FM, 11:00-12:00 a.m., Aug. 1, 2001.

Panel Presentations on Careers in Legal Academia and in Intellectual Property Law, National Conf. of South Asian Law Students Association, Feb. 16, 2002, Northwestern University, Chicago, Illinois.

SHORT COURSES:

Workshop on Intellectual Property and Technology Commercialization, sponsored by the CRDF & SABIT, U.S. Dept. of Commerce, Kyiv, Ukraine, Mar. 1-5, 1999 (with Dr. Mark Taylor).

Workshop on Intellectual Property and Technology Commercialization, sponsored by the CRDF & SABIT, U.S. Dept. of Commerce, Yerevan, Armenia, Mar. 29 - Apr. 2, 1999 (with Dr. Mark Taylor).

Workshop on Intellectual Property and Technology Commercialization, sponsored by the CRDF & SABIT, U.S. Dept. of Commerce, Tashkent, Uzbekistan, May 17-21, 1999 (with Dr. Mark Taylor).

Workshop on Intellectual Property and Technology Commercialization, sponsored by SABIT, U.S. Dept. of Commerce, Washington, D.C., Apr. 4-5, 2000.

Managing Intellectual Property, TRECC, National Center for Supercomputing Applications, UIUC, Feb. 4, 2003, Champaign, Illinois.

B. PUBLICATIONS, PRESENTATIONS & PATENTS IN SCIENCE, ENGINEERING & COMMUNICATION

PEER-REVIEWED JOURNAL PUBLICATIONS:

1. J.P. Kesan, D.P. Neikirk, B.G. Streetman, and P.A. Blakey, "A New Transit Time Device using Quantum Well Injection," **IEEE Electron Device Lett.**, vol. EDL-8, no. 4, pp. 129-131, Apr. 1987.
2. A.C. Campbell, J.P. Kesan, G.E. Crook, C.M. Maziar, D.P. Neikirk, and B.G. Streetman, "Impedance Switching Effects in GaAs/AlAs Barrier Structures," **Elect. Lett.**, vol. 23, no. 18, pp. 926-927, 27 Aug. 1987.
3. C.W. Farley, G.E. Crook, J.P. Kesan, T.R. Block, H.A. Stevens, T.J. Mattord, D.P. Neikirk, and B.G. Streetman, "Substrate Rotation and Carbon Generation in a Molecular Beam Epitaxy System," **J. Vac. Sci. & Technol. B**, vol. 5, no. 5, pp. 1374-2476, Sep./Oct. 1987.
4. A.C. Campbell, J.P. Kesan, G.E. Crook, C.M. Maziar, D.P. Neikirk, and B.G. Streetman, "Capacitive Hysteresis Effects in 5.0 nm Single and Double Barrier AlAs/GaAs Tunneling Structures grown by Molecular-Beam Epitaxy," **J. Vac. Sci. & Technol. B**, vol. 6, no. 2, pp. 651-656, Mar./Apr. 1988.
5. J.P. Kesan, D.P. Neikirk, P.A. Blakey, B.G. Streetman, and T.D. Linton, "Influence of Transit Time Effects of the Optimum Design and Maximum Oscillation Frequency of Quantum Well Oscillators," **IEEE Trans. Electron Devices**, vol. ED-35, no. 4, pp. 405-413, Apr. 1988.
6. J.P. Kesan, A. Mortazawi, D.P. Neikirk, and T. Itoh, "Monolithic Millimeter-wave Oscillator using a Transmission Line Periodically Loaded by QWITT Diodes," **Elect. Lett.**, vol. 24, no. 11, pp. 666-667, 26 May 1988.
7. J.P. Kesan, A. Dodabalapur, D.P. Neikirk, and B.G. Streetman, "Growth and Rapid Thermal Annealing of AlGaAs/InGaAs Pseudomorphic Modulation-Doped Structures," **Appl. Phys. Lett.**, vol. 53, no. 8, pp. 681-683, 22 Aug. 1988.
8. J.P. Kesan, A. Mortazawi, D.R. Miller, T. Itoh, B.G. Streetman, and D.P. Neikirk, "Microwave Frequency Operation of the Quantum Well Injection Transit Time (QWITT) Diode," **Elect. Lett.**, vol. 24, no. 24, pp. 1473-1474, 24 Nov. 1988.
9. T.J. Mattord, J.P. Kesan, G.E. Crook, T.R. Block, A.C. Campbell, D.P. Neikirk, and B.G. Streetman, "Baffle-free Refractory Dimer Arsenic Source for Molecular-Beam Epitaxy," **J. Vac. Sci. & Technol. B**, vol. 6, no. 6, pp. 1667-1670, Nov./Dec. 1988.
10. C.S. Kyono, J.P. Kesan, D.P. Neikirk, C.M. Maziar, and B.G. Streetman, "Dependence of Apparent Barrier Height on Barrier Thickness for Perpendicular Transport in AlAs/GaAs Single Barrier Structures Grown by MBE," **Appl. Phys. Lett.**, vol. 54, no. 6, pp. 549-551, 6 Feb. 1989.
11. A. Dodabalapur, J.P. Kesan, T.R. Block, D.P. Neikirk, and B.G. Streetman, "Optical and Electrical Characterization of AlGaAs/InGaAs Pseudomorphic HEMT Structures Processed by RTA," **J. Vac. Sci. & Technol. B**, vol. 7, no. 2, pp. 380-383, Mar./Apr. 1989.
12. T.J. Mattord, J.P. Kesan, D.P. Neikirk, and B.G. Streetman, "A Single-Filament Effusion

Cell with Reduced Thermal Gradient for Molecular Beam Epitaxy," **J. Vac. Sci. & Technol. B**, vol. 7, no. 2, pp. 214-216, Mar./Apr. 1989.

13. A. Dodabalapur, J.P. Kesan, D.P. Neikirk, and B.G. Streetman, "Photoluminescence Studies of Modulation-Doped Pseudomorphic InGaAs/AlGaAs/GaAs Quantum Wells," **Appl. Phys. Lett.**, vol. 54, no. 17, pp. 1675-1677, 24 Apr. 1989.

14. A.C. Campbell, J.P. Kesan, T.R. Block, G.E. Crook, D.P. Neikirk, and B.G. Streetman, "Influence of MBE Growth Temperature on GaAs/AlAs Resonant Tunneling Structures," **J. Elect. Mat.**, vol. 18, no. 5, pp. 585-588, 1989.

15. J.P. Kesan, A. Mortazawi, D.R. Miller, V.K. Reddy, D.P. Neikirk, and T. Itoh, "Microwave and Millimeter-Wave QWITT Diode Oscillator," **IEEE Trans. Microwave Theory & Tech.**, vol. 37, no. 12, pp. 1933-1941, Dec. 1989.

16. F.K. LeGoues, J.P. Kesan, and S.S. Iyer, "Long-Range Order in Thick, Unstrained Si_{0.5}Ge_{0.5} Epitaxial Layers," **Phys. Rev. Lett.**, vol. 64, no. 1, pp. 40-43, 1 Jan. 1990.

17. A. Dodabalapur, J.P. Kesan, D.P. Neikirk, B.G. Streetman, M.H. Herman, and I.D. Ward, "Photoluminescence and Electroreflectance Studies of Modulation-Doped Pseudomorphic AlGaAs/InGaAs/GaAs Quantum Wells," **J. Elect. Mat.**, vol. 19, no. 3, pp. 265-270, 1990.

18. U. Gennser, J.P. Kesan, S.S. Iyer, T.J. Bucelot, and E.S. Yang, "Resonant Tunneling of Holes through Silicon Barriers," **J. Vac. Sci. & Technol. B**, vol. 8, no. 2, pp. 210-213, Mar./Apr., 1990.

19. F.K. LeGoues, J.P. Kesan, S.S. Iyer, J. Tersoff, and R. Tromp, "Surface Stress Induced Order in SiGe Alloy Films," **Phys. Rev. Lett.**, vol. 64, no. 17, pp. 2038-2041, 23 Apr. 1990.

20. J.P. Kesan, S.S. Iyer, and J.M. Cotte, "Dopant Incorporation in Epitaxial Germanium Grown on Ge(100) Substrates by MBE," **J. Cryst. Growth**, vol. 111, pp. 847-855, 1991.

21. J.P. Kesan, P.G. May, F.K. LeGoues, and S.S. Iyer, "Si/SiGe Heterostructures Grown on SOI Substrates by MBE for Integrated Optoelectronics," **J. Crystal Growth**, vol. 111, pp. 936-942, 1991.

22. U. Gennser, J.P. Kesan, S.S. Iyer, T.J. Bucelot, and E.S. Yang, "Temperature Dependent Transport Measurements on Strained Si/Si_{1-x}Ge_x Resonant Tunneling Devices," **J. Vac. Sci. & Technol. B**, vol. 9, no. 4, pp. 2059-2063, Jul./Aug. 1991.

23. J.P. Kesan, S.S. Iyer, and J.M. Cotte, "P-Type Doping of Germanium Grown by Molecular Beam Epitaxy on Ge(100) Substrates," **Appl. Phys. Lett.**, vol. 59, no. 7, pp. 852-854, 12 Aug. 1991.

24. S.S. Iyer, P.M. Solomon, J.P. Kesan, A.A. Bright, J.L. Freeouf, T.N. Nguyen, and A.C. Warren, "A Gate-Quality Dielectric System for SiGe Metal-Oxide-Semiconductor Devices," **IEEE Electron Device Lett.**, vol. 12, no. 5, pp. 246-248, May 1991.

25. J. Eugene, F.K. LeGoues, J.P. Kesan, S.S. Iyer, and F.M. d'Heurle, "Diffusion versus Oxidation Rates in Silicon-Germanium Alloys," **Appl. Phys. Lett.**, vol. 59, no. 1, pp. 78-80, 1 Jul. 1991.

26. U. Gennser, J.P. Kesan, D.A. Syphers, T.P. Smith III, S.S. Iyer, and E.S. Yang, "Probing Band Structure Anisotropy in Quantum Wells via Magnetotunneling," **Phys. Rev. Lett.**, vol. 67, no. 27, pp. 3828-3831, 30 Dec. 1991.

27. U. Gennser, J.P. Kesan, D.A. Syphers, J.A. Ott, T.P. Smith III, S.S. Iyer, and E.S. Yang, "Effect of Strain on Si/SiGe Valence Band Structure Studied by Angle-Resolved Magnetotunneling Spectroscopy," **J. Vac. Sci. & Technol. B**, vol. 10, no. 2, pp. 940-942, Mar./Apr. 1992.
28. M.S. Goorsky, J.P. Kesan, J.A. Ott, and J.A. Angilello, "Strain Relaxation and Interdiffusion in Si/Si_{1-x}Ge_x Strained Layer Superlattices," **J. Vac. Sci. & Technol. B**, vol. 10, no. 2, pp. 927-929, Mar./Apr. 1992.
29. H.K. Liou, X. Wu, U. Gennser, J.P. Kesan, S.S. Iyer, K.N. Tu, and E.S. Yang, "Interfacial Reactions and Schottky Barriers of Pt and Pd on Epitaxial Si_{1-x}Ge_x Alloys," **Appl. Phys. Lett.**, vol. 60, no. 5, pp. 577-579, 3 Feb. 1992.
30. U. Gennser, J.P. Kesan, S.S. Iyer, J.A. Ott, and E.S. Yang, "Influence of Device Structure and Growth Conditions on the Tunneling Characteristics of Si/Si_{1-x}Ge_x Double Barrier Structures," **J. Elect. Mat. Letters**, 1993.
31. J.C. Tsang, J.P. Kesan, J.L. Freeouf, F.K. LeGoues, and S.S. Iyer, "Raman Spectroscopy of Ordering in Si_{0.5}Ge_{0.5} Alloys," **Phys. Rev. B**, vol. 46, no. 11, 15 Sep. 1992-l.
32. J.P. Kesan, F.K. LeGoues, and S.S. Iyer, "Influence of Epitaxial Growth Conditions and Surface Reconstructions on Long Range Order in Si_{1-x}Ge_x Alloys," **Phys. Rev. B**, vol. 46, no. 3, pp. 1576-1581, 15 Jul. 1992.
33. J.P. Kesan, E. Bassous, P. Munguia, S.F. Pesarcik, S.S. Iyer, and J.-M. Halbout, "Electroluminescence and Photoluminescence from Microporous Silicon p-n Junctions," to be published in **J. Vac. Sci. & Technol. A**, 1992.
34. J.P. Kesan, U. Gennser, D.A. Syphers, T.P. Smith III, and S.S. Iyer, "Angle-resolved magneto-tunneling spectroscopy to probe valence band anisotropy in Si/Si_{1-x}Ge_x quantum wells," **J. Vac. Sci. & Technol. B**, vol. 11, no. 3, pp. 1140-1144, May/Jun. 1993.
35. E.T. Yu, M.B. Johnson, J.P. Kesan, A.R. Powell, J.-M. Halbout, and S.S. Iyer, "Cross-sectional scanning tunneling microscopy of MBE-grown Si p-n junctions and Si/SiGe superlattices," **J. Crystal Growth**, vol. 127, pp. 435-439, 1993.
36. Y. Taur, S. Cohen, S. Wind, T. Lii, C. Hsu, D. Quinlan, C.A. Chang, D. Buchanan, P. Agnello, Y.-J. Mii, C. Reeves, A. Acovic, and J. Kesan, "Experimental 0.1- μ m p-Channel MOSFET with p+-polysilicon gate on 35 \AA Gate oxide," **IEEE Elect. Dev. Lett.**, vol. 14, no. 6, pp. 304-306, June 1993.
37. J.-P. Cheng, J.P. Kesan, D.A. Grutzmacher, T.O. Sedgwick, and J.A. Ott, "Cyclotron Resonance studies of two-dimensional holes in strained Si_{1-x}Ge_x/Si quantum wells," **Appl. Phys. Lett.**, vol. 62, no. 13, pp. 1522-1524, 29 Mar. 1993.
38. D.A. Grutzmacher, T.O. Sedgwick, G.A. Northrop, A. Zaslavsky, A.R. Powell, and J.P. Kesan, "Very narrow SiGe/Si quantum wells deposited by low-temperature atmospheric pressure chemical vapor deposition," **J. Vac. Sci. & Technol. B**, vol. 11, no. 3, pp. 1083-1087, May/Jun. 1993.
39. M. Arienzo, J.H. Comfort, E.F. Crabbé, D.L. Haramé, S.S. Iyer, J.P. Kesan, B.S. Meyerson, G.L. Patton, J.M.C. Stook, and Y.-C. Sun, "SiGe heterojunctions: Devices and applications," **Microelectronic Engineering**, vol. 19, pp. 519-527, 1992.

40. F.K. LeGoues, R.M. Tromp, J.P. Kesan, and J. Tsang, "Critical test of the structure of the ordered phase in epitaxially grown $\text{Si}_{1-x}\text{Ge}_x$ films," **PRB Rapid Comm.**, vol. 47, no. 15, pp. 10012-10015, 15 April 1993-I.
41. T.O. Sedgwick, D.A. Grutzmacher, A. Zaslavsky, and J.P. Kesan, "Selective SiGe and heavily As doped Si deposited at low temperature by atmospheric pressure chemical vapor deposition," **J. Vac. Sci. & Technol. B**, vol. 11, no. 3, pp. 1124-1128, May/June. 1993.
42. H.R. Choo, X.F. Hu and M.C. Downer, AFemtosecond ellipsometric study of nonequilibrium carrier dynamics in Ge and epitaxial $\text{Si}_{1-x}\text{Ge}_x$, **Appl. Phys. Lett.**, vol. 63, no. 4, 26 July 1993.
43. J.-P. Cheng, J.P. Kesan, D.A. Grutzmacher and T.O. Sedgwick, "Cyclotron effective mass of holes in strained $\text{Si}_{1-x}\text{Ge}_x/\text{Si}$ quantum well structures, **Surf. Sci.**, vol. 305, pp. 275-279, 1994.
44. J.-P. Cheng, J.P. Kesan, D.A. Grutzmacher and T.O. Sedgwick, "Cyclotron effective mass of holes in $\text{Si}_{1-x}\text{Ge}_x/\text{Si}$ quantum wells: Strain and nonparabolicity effects, **Appl. Phys. Lett.**, vol. 64, no. 13, pp. 1681-1683, 28 March 1994.
45. M. Ghioni, F. Zappa, J.P. Kesan, and J. Warnock, AA VLSI-compatible High-Speed Silicon Photodetector for Optical Data Link Applications, **IEEE Trans. Elect. Dev.**, vol. 43, no. 7, pp. 1054-1060, July 1996.
46. R. Shah and J.P. Kesan, Incorporating Societal Concerns into Communication Technologies, to be published in **IEEE Technology and Society Magazine**, 2003.
47. R. Shah and J.P. Kesan, Producing Code: A Political Economy of Communication Technologies, submitted to **Critical Studies in Media Communication**, March 2003.
48. R. Shah and J.P. Kesan, Nurturing Software: How Societal Institutions Shape the Development of Software, submitted to **Communications of the ACM**, March 2003.

CONFERENCE PROCEEDINGS AND PRESENTATIONS:

1. J. Kesan, D.P. Neikirk, and B.G. Streetman, "Analysis of Transit Time Effects due to Spacer Layers in Quantum Well Oscillators," **Picosecond Electronics and Optoelectronics II**, ed. by F.J. Leonberger, C.H. Lee, F. Capasso, and H. Morkoç, Springer-Series in Electronics and Photonics 24, pp. 116-120, Jan. 14-16, 1987.
2. A.C. Campbell, J.P. Kesan, G.E. Crook, C.M. Maziar, D.P. Neikirk, and B.G. Streetman, "Capacitive Hysteresis Effects in 5.0 nm Single and Double Barrier AlAs/GaAs Tunneling Structures Grown by Molecular-Beam Epitaxy," **8th Molecular Beam Epitaxy Workshop**, Sept. 9-11, 1987.
3. J.P. Kesan, T.D. Linton, C.M. Maziar, D.P. Neikirk, P.A. Blakey, and B.G. Streetman, "Power Optimized Design of Quantum Well Oscillators," **1987 IEEE International Electron Device Meeting Tech. Dig.**, pp. 62-65, Dec. 6-9, 1987.
4. J.P. Kesan, D.P. Neikirk, T.D. Linton, P.A. Blakey, and B.G. Streetman, "Influence of Transit Time Effects on the Optimum Design and Maximum Oscillation Frequency of Quantum Well Oscillators," **Proc. of the 12th International Conference on Infrared and Millimeter Waves**, ed. by R.J.

Temkin, pp. 12-13, Dec. 14-18, 1987.

5. J.P. Kesan, A. Dodabalapur, D.P. Neikirk, and B.G. Streetman, "Influence of MBE Growth and Rapid Thermal Annealing Conditions on the Electrical Properties of Normal and Inverted AlGaAs/InGaAs Pseudomorphic HEMT Structures," **IEEE 46th Annual Device Research Conference**, IIB-1, Jun. 20-22, 1988; also **IEEE Trans. Electron Devices**, vol. 35, no. 12, p. 2440, Dec. 1988.

6. A.C. Campbell, J.P. Kesan, G.E. Crook, D.P. Neikirk, and B.G. Streetman, "Capacitance Transient Analysis of GaAs/AlAs Tunneling Structures," **1988 Electronic Materials Conference**, P6, Jun. 22-24, 1988.

7. A. Dodabalapur, J.P. Kesan, T.R. Block, D.P. Neikirk, and B.G. Streetman, "Optical and Electrical Characterization of AlGaAs/InGaAs Pseudomorphic HEMT Structures Processed by RTA," **9th Molecular Beam Epitaxy Workshop**, Sept. 21-23, 1988.

8. A. Mortazawi, J.P. Kesan, D.P. Neikirk, and T. Itoh, "Periodic Monolithic Millimeter-wave Quantum Well Oscillator," **Proc. of the 13th International Conference on Infrared and Millimeter Waves**, ed. by R.J. Temkin, pp. 47-48, Dec. 5-9, 1988.

9. D.R. Miller, J.P. Kesan, R.L. Rogers, C.M. Maziar, and D.P. Neikirk, "Time Dependent Simulation of the Quantum Well Injection Transit Time Diode," **Proc. of the 13th International Conference on Infrared and Millimeter Waves**, ed. by R.J. Temkin, pp. 5-6, Dec. 5-9, 1988.

10. J.P. Kesan, A. Mortazawi, D.P. Neikirk, and T. Itoh, "DC and Microwave Characterization of the Quantum Well Injection Transit Time (QWITT) Diode," **Int. Sym. on Signals, Systems, and Electronics, URSI Comm. D**, Sept. 18-20, 1989.

11. J.P. Kesan, A. Mortazawi, D.P. Neikirk, and T. Itoh, "Microwave and Millimeter-Wave QWITT Diode Oscillator," **IEEE MTT-S Int. Microwave Sym. Dig.**, pp. 487-490, Jun. 1989.

12. A. Dodabalapur, J.P. Kesan, D.P. Neikirk, and B.G. Streetman, "Photoluminescence and Electroreflectance Characterization of Modulation-Doped Quantum Wells," **1989 Electronic Materials Conference**, Q4, Jun. 21-23, 1989.

13. A. Mortazawi, J.P. Kesan, D.P. Neikirk, and T. Itoh, "A Self Oscillating QWITT Diode Mixer," **Proc. of the 19th European Microwave Conference**, pp. 715-718, Sept. 1989.

14. S.S. Iyer, A. Harwit, J.C. Tsang, J.P. Kesan, and J. Angilello, "Growth and Properties of SnGe Films Grown by MBE," **119th TMS Annual Meeting**, Anaheim, CA, Feb. 18-22, 1990.

15. S.S. Iyer, J.P. Kesan, F.K. LeGoues, J.C. Tsang, and J.L. Freeouf, "Si_{1-x}Ge_x Alloys: MBE Growth, Properties, and Applications," **(INVITED) 119th TMS Annual Meeting**, Anaheim, CA, Feb. 18-22, 1990.

16. P.G. May and J.P. Kesan, "Silicon-On-Insulator for Integrated Optoelectronics Applications," **(INVITED) IEEE Topical Conf. on Packaging**, White Haven, PA, May 9-11, 1990.

17. J.P. Kesan, F.K. LeGoues, and S.S. Iyer, "Long Range Order in MBE Grown, Unstrained, Si_{1-x}Ge_x (0.1 < x < 0.9) Alloys," **1990 Electronic Materials Conf.**, Santa Barbara, CA, June 28-30, 1990.

18. G.A. Northrop, D.J. Wolford, J.P. Kesan, and S.S. Iyer, "Photoluminescence from Epitaxial

Silicon, SiGe Relaxed Alloy Layers, and Narrow Period Superlattices," **1990 Electronic Materials Conf.**, Santa Barbara, CA, June 28-30, 1990.

19. S.S. Iyer, P.M. Solomon, J.P. Kesan, J.L. Freeouf, A.A. Bright, and T.N. Nguyen, "Si/SiGe Metal Oxide Semiconductor Devices, **48th Annual Device Research Conf.**, Santa Barbara, CA, June 25-27, 1990.

20. J.P. Kesan, U. Gennser, S.S. Iyer, and T.J. Bucelot, "Perpendicular Transport in Strain Engineered Si/Si_{1-x}Ge_x Quantum Well Devices," **48th Annual Device Research Conf.**, Santa Barbara, CA, June 25-27, 1990.

21. S.S. Iyer, G.A. Northrop, and J.P. Kesan, "Defect Related Issues in the Application of Si/Si_{1-x}Ge_x Structures," **(INVITED) Polycrystalline Semiconductors 1990**, Schwabisch Hall, W. Germany, July 30-Aug. 3, 1990; to be published in **Polycrystalline Semiconductors II**, eds. J.H. Werner and H.P. Strunk, Springer Proceedings in Physics, Springer-Verlag, 1990.

22. G.A. Northrop, D.J. Wolford, J.P. Kesan, and S.S. Iyer, "Photoluminescence from Epitaxial Silicon, Si/Si_{0.95}Ge_{0.05} Superlattices, Si_{1-x}Ge_x Relaxed Alloy Layers, and Narrow Period Superlattices," **20th International Conf. on the Phys. of Semi.**, Thessaloniki, Greece, Aug. 6-10, 1990.

23. J.C. Tsang, J.L. Freeouf, J.P. Kesan, and S.S. Iyer, "Resonant Raman Scattering and Spectroscopic Ellipsometry of the E₁ Gap in Ultra-thin Ge Layers," **20th International Conf. on the Phys. of Semi.**, Thessaloniki, Greece, Aug. 6-10, 1990.

24. S.S. Iyer, and J.P. Kesan, "SiGe Alloys: From Very Thick to Very Thin Layers," **(INVITED) Sixth Int. Conf. on Molecular Beam Epitaxy**, San Diego, CA, Aug. 27-31, 1990.

25. J.P. Kesan, S.S. Iyer, and J.M. Cotte, "Dopant Incorporation in Epitaxial Germanium Grown on Ge(100) Substrates by MBE," **Sixth Int. Conf. on Molecular Beam Epitaxy**, San Diego, CA, Aug. 27-31, 1990.

26. J.P. Kesan, P.G. May, F.K. LeGoues, and S.S. Iyer, "Si/SiGe Heterostructures Grown on SOI Substrates by MBE for Integrated Optoelectronics," **Sixth Int. Conf. on Molecular Beam Epitaxy**, San Diego, CA, Aug. 27-31, 1990.

27. F.K. LeGoues, J.P. Kesan, and S.S. Iyer, "Long-Range Order in SiGe Alloys," **(INVITED) 37th National Sym. of the AVS: Topical Conf. on Silicon-Based Heterostructures**, Toronto, Canada, Oct. 8-12, 1990.

28. J.C. Tsang, J.P. Kesan, and S.S. Iyer, "Raman Spectroscopy of Si_{0.5}Ge_{0.5} Alloys showing Long-Range Order," **37th National Sym. of the AVS: Topical Conf. on Silicon-Based Heterostructures**, Toronto, Canada, Oct. 8-12, 1990.

29. J.P. Kesan, U. Gennser, S.S. Iyer, and T.J. Bucelot, "Temperature Dependent Transport Measurements on Si/Si_{1-x}Ge_x Double Barrier Resonant Tunneling Devices," **37th National Sym. of the AVS: Topical Conf. on Silicon-Based Heterostructures**, Toronto, Canada, Oct. 8-12, 1990.

30. J.P. Kesan, P.G. May, E. Bassous, and S.S. Iyer, "Integrated Waveguide-Photodetector using Si/SiGe Multiple Quantum Wells for Long Wavelength Applications," **Int. Electron Device Meeting (IEDM) Tech. Dig.**, pp. 637-640, San Francisco, CA Dec. 7-11, 1990.

31. J.P. Kesan, "Si-Based Optoelectronics," **(INVITED) SRC Topical Conference on Integration of Novel Processes**, Los Angeles, CA, Apr. 24-25, 1991.
32. J.P. Kesan, G.V. Treyz, E. Bassous, P.G. May, S.S. Iyer, and J.-M. Halbout, "Integrated Rib Waveguide-Photodetector using Si/SiGe Multiple Quantum Wells for Long Wavelengths," **MRS Spring Meeting, Symp. B: Silicon Molecular Beam Epitaxy**, vol. 220, pp. 483-488, Anaheim, CA, Apr. 29-May 3, 1991.
33. J.P. Kesan, S. Subbanna, M.J. Tejwani, P.J. Restle, and S.S. Iyer, "Si/Si_{1-x}Ge_x p-Channel MOSFETs Fabricated Using a Gate Quality Dielectric Process," **MRS Spring Meeting, Symp. B: Silicon Molecular Beam Epitaxy**, vol. 220, pp. 471-476, Anaheim, CA, Apr. 29-May 3, 1991.
34. U. Gennser, J.P. Kesan, D.A. Syphers, S.S. Iyer, T.P. Smith III, and E.S. Yang, "Magneto-Transport Measurements on Si/SiGe Resonant Tunneling Structures," **MRS Spring Meeting, Symp. B: Silicon Molecular Beam Epitaxy**, vol. 220, pp. 397-402, Anaheim, CA, Apr. 29-May 3, 1991.
35. P.D. Agnello, T.O. Sedgwick, T.S. Kuan, G. Scilla, M.S. Goorsky, and J.P. Kesan, "Growth of SiGe Alloys by Atmospheric Pressure Chemical Vapor Deposition at Low Temperatures," **MRS Spring Meeting, Symp. B: Silicon Molecular Beam Epitaxy**, vol. 220, pp. 607-612, Anaheim, CA, Apr. 29-May 3, 1991.
36. J.P. Kesan, G.V. Treyz, P.G. May, S.S. Iyer, and J.-M. Halbout, "Integrated Rib-Waveguide Si/SiGe Photodetector for Long Wavelengths," **Conf. on Lasers and Electro-Optics (CLEO)**, CWB3, pp. 224-225, Baltimore, MD, May 12-17, 1991.
37. S. Subbanna, J.P. Kesan, M.J. Tejwani, P.J. Restle, D.J. Mis, and S.S. Iyer, "Si/Si_{1-x}Ge_x p-Channel MOSFETs," **1991 Symp. on VLSI Technol. (Tech. Dig.)**, pp. 103-104, Oiso, Japan, May 28-30, 1991.
38. J.P. Kesan, and S.S. Iyer, "Growth and Characterization of Si/Si_{1-x}Ge_x Heterostructures Grown on SIMOX Substrates by MBE," **33rd Electronic Materials Conf.**, M1, p. 36, Boulder, CO, Jun 18-21, 1991; Also see **Jour. Elect. Mat.**, vol. 20, no. 7, Jul. 1991.
39. U. Gennser, J.P. Kesan, S.S. Iyer, and E.S. Yang, "Influence of Spacer Layer Structure and Growth Conditions on the Tunneling Characteristics of MBE Grown Pseudomorphic Si/Si_{1-x}Ge_x Double Barrier Structures," **33rd Electronic Materials Conf.**, M10, p. 40, Boulder, CO, Jun 18-21, 1991; Also see **Jour. Elect. Mat.**, vol. 20, no. 7, Jul. 1991.
40. U. Gennser, J.P. Kesan, D.A. Syphers, T.P. Smith III, S.S. Iyer, and E.S. Yang, "Effect of Strain on Si/SiGe Hole Band Structures Studied by Angle-Resolved Magnetotunneling Spectroscopy," **11th Molecular Beam Epitaxy Workshop**, Austin, TX, Sept. 16-18, 1991.
41. M.S. Goorsky, J.P. Kesan, J.A. Ott, and J.A. Angilello, "Strain Relaxation and Interdiffusion in Si/Si_{1-x}Ge_x Strained Layer Superlattices," **11th Molecular Beam Epitaxy Workshop**, Austin, TX, Sept 16-18, 1991.
42. J.P. Kesan, E. Bassous, M.R. Scheuermann, G.V. Treyz, and S.S. Iyer, "Si/Si_{1-x}Ge_x PIN and MSM Photodetectors for Short and Long Wavelength Applications," **SPIE Conf. on Emerging Optoelectronic Technologies**, Bangalore, India, Dec. 16-20, 1991.
43. J.P. Kesan, S. Subbanna, P.J. Restle, M.J. Tejwani, J.M. Aitken, S.S. Iyer, and J.A. Ott,

"High Performance 0.25 μm p-MOSFETs with Silicon-Germanium Channels for 300K and 77K Operation," **Int. Electron Device Meeting (IEDM)**, Washington, D.C., Dec. 9-11, 1991.

44. J.P. Kesan, T.O. Sedgwick, P.D. Agnello, D. Grutzmacher, D. Nguyen-Ngoc, and S.S. Iyer, "Characterization of Devices Fabricated in Films Grown at Low Temperatures by Atmospheric Pressure CVD," **Int. Electron Device Meeting (IEDM)**, Washington, D.C., Dec. 9-11, 1991.

45. E. Bassous, M.R. Scheuermann, J.P. Kesan, M. Ritter, J.-M. Halbout, and S.S. Iyer, "A High-Speed Silicon Metal-Semiconductor-Metal Photodetector Fully Integrable with (Bi)CMOS Circuits," **Int. Electron Device Meeting (IEDM)**, Washington, D.C., Dec. 9-11, 1991.

46. J.P. Kesan, E. Bassous, P. Munguia, S.F. Pesarcik, S.S. Iyer, and J.-M. Halbout, "Electroluminescence and Photoluminescence from Microporous Silicon p-n Junctions," **39th National Sym. of the Am. Vac. Soc.**, Chicago, IL, Nov. 9-13, 1992.

47. J.P. Kesan, "Angle-Resolved Magnetotunneling Spectroscopy (ARMS) to Probe Valence Band Anisotropy in $\text{Si}/\text{Si}_{1-x}\text{Ge}_x$," **(INVITED) 39th National Sym. of the AVS: Topical Conf. on Silicon-Based Heterostructures**, Chicago, IL, Nov. 9-13, 1992.

48. E.T. Yu, M.B. Johnson, J.P. Kesan, A.R. Powell, J.-M. Halbout, and S.S. Iyer, "Cross-Sectional Scanning Tunneling Microscopy of MBE-Grown Silicon p-n Junctions and Si/SiGe Superlattices," **Seventh Int. Conf. on Molecular Beam Epitaxy**, Schwaebisch-Gmund, Germany, Aug. 24-28, 1992.

49. J.P. Kesan, "New Trends in $\text{Si}/\text{Si}_{1-x}\text{Ge}_x$ Devices and Nanostructures," **(INVITED) 7th Int. Winter School on New Developments in Solid-State Physics**, New concepts for Low-Dimensional Electronic Systems, Mauterndorf, Salzburg, Austria, Feb. 24-28, 1992.

50. H.R. Choo, M.C. Downer, and J.P. Kesan, "Real-Time Femtosecond Ellipsometry of $\text{Si}_{1-x}\text{Ge}_x$ and C_{60} Crystalline Films," **Quantum Electronics and Laser Science (QELS)**, Anaheim, CA, May 1992.

51. H.R. Choo, M.C. Downer, and J.P. Kesan, "Real-Time Femtosecond Ellipsometry of $\text{Si}_{1-x}\text{Ge}_x$ Epilayers," **MRS Proceedings: Mechanisms of Heteroepitaxial Growth**, vol. 263, ed. by M.V. Chisolm, B.J. Garrison, R. Hull, and L.J. Schowalter, 1992.

52. M. Arienzo, J.H. Comfort, E.F. Crabbé, D.L. Hame, S.S. Iyer, J.P. Kesan, and B.S. Meyerson, "SiGe Heterojunctions: Devices and Applications," **(PLENARY TALK) European Solid-State Device Research Conf. (ESSDERC)**, Leuven, Belgium, Sept. 14-17, 1992.

53. Y. Taur, S. Cohen, S. Wind, T. Lii, C. Hsu, D. Quinlan, C. Chang, D. Buchanan, P. Agnello, Y. Mii, C. Reeves, A. Acovic, and J. Kesan, "High Transconductance 0.1 μm pMOSFET," **IEDM Tech. Digest**, pp. 901-904, Dec. 13-16, 1992, San Francisco, CA.

54. J.-P. Chang, J.P. Kesan, D.A. Grutzmacher, and T.O. Sedgwick, "Cyclotron Effective Mass of Holes in Strained $\text{Si}_{1-x}\text{Ge}_x/\text{Si}$ Quantum Well Structures," **10th International Conference on the Electronic Properties of Two-Dimensional Systems**, May 31-June 4, 1993, Newport, Rhode Island.

55. J.-P. Chang, J.P. Kesan, D.A. Grutzmacher, T.O. Sedgwick, and J.A. Ott, "Cyclotron Resonance of Quasi-2D Holes in Strained $\text{Si}_{1-x}\text{Ge}_x/\text{Si}$ Quantum Wells," **March Meeting of the American Physical Society**, 22-26 March, 1993.

56. M. Arienzo, J.H. comfort, E.F. Crabbé, D.L. Hame, S.S. Iyer, J.P. Kesan, B.S. Meyerson,

G.L. Patton, J.M.C. Stork, Y.-C. Sun, "SiGe Heterojunctions Transistors and Optoelectronic Devices," **MRS Fall Meeting**, Dec. 2, 1992, Boston, MA.

57. A.F.M. Anwar, K.W. Liu, M.M. Jahan, and J.P. Kesan, "DC small signal parameters and noise performance for Si/Si_{1-x}Ge_x FETs," **12th International Conference on Noise in Physical Systems and 1/f Fluctuations**, Aug. 16-20, 1993, St. Louis, Missouri.

58. Participated as Panel Member in IEEE Panel on Engineering Ethics, Intellectual Property and the New Information Technologies, Case Western Reserve University, Mar. 24, 1999, published in **IEEE Spectrum Magazine**, pp. 29-37, Aug. 1999.

OTHER TECHNICAL PUBLICATIONS:

1. J. Kesan and D.P. Neikirk, "Quantum Well Devices Will Challenge HEMTs," **Microwaves and RF**, vol. 25, pp. 93-97, Jul. 1986.

2. J.P. Kesan and D.P. Neikirk, "Quantum Well Devices," **JSEP Electrical Engineering Research Laboratory Technical Report**, no. 87-P-8, Aug. 7, 1987.

3. A. Mortazawi, J. Kesan, D. Neikirk, and T. Itoh, "Nonlinear Analysis of a Monolithic QWITT Oscillator," **Microwave Laboratory Report** (sponsored by ARO and JSEP), no. 88-P-6, Dec. 1988.

INVITED SEMINARS:

1. "Si-Based Optoelectronics," **NASA Goddard Space Flight Center**, Greenbelt, MD, Mar. 21, 1991.

2. "Si/SiGe p-Channel MOSFETS," Research Center for Advanced Science and Technology (RCAST), **University of Tokyo**, Tokyo, Japan, May 27, 1991.

3. "Si-Based Optoelectronics," **Defense Advanced Research Projects Agency (DARPA)**, Arlington, VA, Jun. 11, 1991.

4. "Si-Based Optoelectronics," Institute for Solid-State Physics, **Johannes Kepler University of Linz**, Linz, Austria, Feb. 22, 1982.

5. "Advances in Si-Based Heterostructure Devices," Electrical and Systems Engineering Seminar, **University of Connecticut**, Storrs, CT, Feb. 7, 1992.

U.S. PATENTS:

1. U.S. Patent No. 5,034,604 issued July 23, 1991, "Refractory Effusion Cell to Generate a Reproducible, Uniform, and Ultra-pure Molecular Beam of Elemental Molecules Utilizing Reduced Thermal Gradient Filament Construction" (with T.J. Mattord and B.G. Streetman). Licensed Technology to EPI Technologies, Inc.

2. U.S. Patent No. 5,268,324 issued on Dec. 7, 1993, "Modified silicon CMOS process having

selectively deposited Si/SiGe FETs® (with J.M. Aitken, S. Seshadri, M.J. Tejwani and S.S. Iyer).

3. U.S. Patent No. 5,458,756 issued Oct. 17, 1995, Apparatus for producing porous silicon on a substrate® (with E. Bassous, J.-M. Halbout and S.S. Iyer).

4. U.S. Patent No. 5,501,787 issued on Mar. 26, 1996, Immersion scanning system for fabricating porous silicon films® (with E. Bassous, J.-M. Halbout and S.S. Iyer).

5. U.S. Patent No. 5,525,828 issued on Jun. 11, 1996, High speed silicon-based lateral junction photodetectors having recessed electrodes and thick oxide to reduce fringing fields® (with E. Bassous, J.-M. Halbout, S.S. Iyer, R.V. Joshi, M. Scheuermann and M.A. Ghioni).