

# JAY P. KESAN

## PUBLICATIONS, BOOKS, BOOK CHAPTERS & PATENTS

### 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<sub>0.5</sub>Ge<sub>0.5</sub> 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<sub>1-x</sub>Ge<sub>x</sub> 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<sub>1-x</sub>Ge<sub>x</sub> 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<sub>1-x</sub>Ge<sub>x</sub> 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<sub>1-x</sub>Ge<sub>x</sub> 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<sub>0.5</sub>Ge<sub>0.5</sub> Alloys," **Phys. Rev. B**, vol. 46, no. 11, 15 Sep. 1992-I.

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<sub>1-x</sub>Ge<sub>x</sub> 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<sub>1-x</sub>Ge<sub>x</sub> 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- $\mu$ m p-Channel MOSFET with p+-polysilicon gate on 35 $\mu$  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<sub>1-x</sub>Ge<sub>x</sub>/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. Harame, 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 Si<sub>1-x</sub>Ge<sub>x</sub> 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 Si<sub>1-x</sub>Ge<sub>x</sub>, **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 Si<sub>1-x</sub>Ge<sub>x</sub>/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 Si<sub>1-x</sub>Ge<sub>x</sub>/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. The Relationship Between Intellectual Property Protection and Biotechnology – A Multi-Disciplinary Perspective, 44 **American Behavioral Scientist** 464 (Nov. 2000) (Invited paper).
47. Designing an Optimal Intellectual Property System for Plants: A U.S. Supreme Court Debate, with M. Janis, 19 **Nature Biotechnology** 981 (2001).
48. Intellectual Property Protection for Plant Innovation: Unresolved Issues After J.E.M. v. Pioneer, with M. Janis, 20 **Nature Biotechnology** 1161 (2002).
49. Incorporating Societal Concerns into Communication Technologies, with R. Shah, **IEEE Technology & Society** 28 (Summer 2003).
50. Manipulating the Governance Characteristics of Code, with R. Shah, **Info** 5.4, 3-9 (2003).
51. Nurturing Software: How Societal Institutions Shape the Development of Software, with R. Shah, 48 **Communications of the ACM** 80 (Sept. 2005).
52. Property Rights and Incentives to Invest in Seed Varieties: Governmental Regulations in Argentina, with A. Gallo, **AgBioForum**, vol. 8, pp. 118-126 (2005).
53. Why are the United States and the European Union Failing to Regulate Electronic Commerce Efficiently? Going Beyond the Bottom-Up and Top-Down Regulatory Alternatives, with A. Gallo, **Euro. J. of L. & Econ.**, vol. 21, no. 3, pp. 237-266 (May 2006).
54. The Privatization of the Internet's Backbone Network, with R. Shah, **J. of Broadcasting & Electronic Media**, vol. 51, no. 1, pp. 93-109 (2007).
55. How Architecture Regulates, with R. Shah, **J. of Architectural & Planning Research**, vol. 24, no. 4, pp. 350-359 (2007).
56. Pondering the Politics of Private Procedures: The Case of ICANN, with A. Gallo, **I/S: A Journal of Law and Policy for the Information Society**, vol. 4, no. 1, pp. 345-408 (2008).
57. Setting Online Policy With Software Defaults, with R. Shah, **Information, Communication,**

**And Society**, vol. 11, no. 7, pp. 989-1007 (Oct. 2008).

58. Lessons for Government Adoption of Open Standards: A Case Study of the Massachusetts Policy, with R. Shah and A. Kennis, **Journal of Information Technology & Politics**, vol. 5, no. 4, pp. 387-398 (2008).

59. Recipes for Cookies: How Institutions Shape Communication Technologies, with R. Shah, **New Media & Society**, vol. 11, no. 3, pp. 315-336 (2009).

60. Running Code as Part of an Open Standards Policy, with R. Shah, **First Monday**, vol. 14, no. 6, 1 June 2009.

61. *Developing a Comprehensive Patent Related Information Retrieval Tool*, with S. Taduri, H. Yu, G. Lau and K. Law, JOURNAL OF THEORETICAL AND APPLIED ELECTRONIC COMMERCE RESEARCH, vol. 6, no. 2, pp. 1-16 (Aug. 2011).

62. *Mining Information Across Multiple Domains: A Case Study of Application to Patent Laws and Regulations in Biotechnology*, with H. Yu, S. Taduri, G. Lau and K. Law, GOVERNMENT INFORMATION QUARTERLY, vol. 29, no. 1, pp. S11-S21 (Jan. 2012).

63. *A Legal Analysis of the Effects of the Renewable Fuel Standard (RFS2) and Clean Air Act on the Commercialization of Biobutanol as a Transportation Fuel in the United States*, with T. Slating, GLOBAL CHANGE BIOLOGY (GCB) BIOENERGY, no. 4, pp. 107-118 (2012).

64. *Lost in Translation: Interoperability Issues for Open Standards*, I/S: A JOURNAL OF LAW AND POLICY FOR THE INFORMATION SOCIETY, vol. 8, no. 1, pp. 119-147 (Summer 2012).

65. *Heterogeneity Among Patent Plaintiffs: An Empirical Analysis of Patent Case Progression, Settlement, and Adjudication*, with C. Cotropia and D. Schwartz, J. EMPIRICAL LEGAL STUD., vol. 15, no. 1, pp. 80-125 (March 2018).

66. *Understanding Patent "Privateering": A Quantitative Assessment*, with A. Layne-Farrar and D.L. Schwartz, J. EMPIRICAL LEGAL STUD., forthcoming 2019.

67. *Do Tax Policies Drive Innovation by SMEs in China?*, with R. Wang, under review at J. EMPIRICAL LEGAL STUD., Jan. 2019.

68. *Cyber Risk and Insurance for Transportation Infrastructure*, with G. Tonn, L. Zhang, and J. Czajkowski, TRANSPORTATION POLICY, forthcoming 2019.

69. *An Empirical Investigation of the Relationship between Local Government Budgets, IT Expenditures and Cyber Losses*, with L. Zhang, IEEE TRANSACTIONS ON EMERGING TOPICS IN COMPUTING, SI: eGovernment Research, Management and Innovation (SIEGRMI), forthcoming 2019.

70. *Studying the Impact of eBay on Injunctive Relief in Patent Cases*, with K. Gupta, to be submitted to J. EMPIRICAL LEGAL STUD., 2019.

## **BOOKS:**

1. Alces, Frisch, Kesan, and See, **THE COMMERCIAL LAW OF INTELLECTUAL PROPERTY**, Aspen Publishing Co., 2003-2019 Cumm. Supp. (treatise).

2. Ghosh, Gruner, and Kesan, **TRANSACTIONAL INTELLECTUAL PROPERTY: FROM STARTUPS TO PUBLIC COMPANIES**, with Teacher's Manual, Carolina Academic Press (2006) (Fourth Edition, 2018) (casebook).

This is a unique and first-of-its-kind casebook that deals with all the legal, intellectual property problems faced by firms of all sizes from a start-up to a publicly traded company. Unlike all other IP books, that only address the acquisition and enforcement of IP rights, this casebook deals with all the transactional and commercial legal issues related to IP.

3. Greenough, McConnaughay and Kesan (ed.), **DEFINING VALUES FOR RESEARCH AND TECHNOLOGY**, Rowman & Littlefield Publishing (Fall 2006).

4. Ghosh, Gruner, Kesan and Reis, **INTELLECTUAL PROPERTY: PRIVATE RIGHTS, THE PUBLIC INTEREST, AND THE REGULATION OF CREATIVE ACTIVITY**, with Teacher's Manual, West Publishing Co. (2007) (Third Edition, 2016) (casebook).

As intellectual property is increasingly being taken by law students with an interest in private law, there are introduction to intellectual property survey courses being offered by most law schools. This casebook by West is designed to address that need.

5. Kesan, Jay (ed.), **AGRICULTURAL BIOTECHNOLOGY AND INTELLECTUAL PROPERTY: SEEDS OF CHANGE**, CABI Publishing Co., Oxford (2007).

6. Fitzgerald, Kesan, Russo, Shaikh and Succi, **ADOPTING OPEN SOURCE SOFTWARE: A PRACTICAL GUIDE**, MIT Press, Oct. 2011.

## **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).

5. *A Tiger By The Tail: The Law Contends with Science and Technology in America*, in **SCIENCE & LAW FROM A COMPARATIVE PERSPECTIVE** (G. Comandé & G. Ponzanelli, eds., G. Giappichelli, Torino 2004).

6. *Cybercrimes and Cyber-Attack: Technological, Economic and Law-Based Solutions*, with R.P. Majuca, in **CYBERCRIME & SECURITY** (P.C. Reich, ed., Oceana Publications, Inc., 2005).

7. *The Statutory Toolbox: Plants*, in **INTELLECTUAL PROPERTY MANAGEMENT IN HEALTH AND AGRICULTURAL INNOVATION: A HANDBOOK OF BEST PRACTICES** (A. Krattiger *et al.*, eds., MIHR, Oxford, UK 2007).

8. *Taking Stock of the U.S. Patent System*, in **INTELLECTUAL PROPERTY AND INFORMATION WEALTH, VOLUME TWO: PATENTS AND TRADE SECRETS** (P.K. Yu, ed., Praeger 2007), pp. 227-248.

9. *Improving Access to Government Information with Open Standards for Document Formats*, with R. Shah, in **HANDBOOK OF RESEARCH ON ICT ENABLED TRANSFORMATIONAL GOVERNMENT: A GLOBAL PERSPECTIVE** (V. Weerakkody, M. Janssen, and Y.K. Dwivedi, eds., IGI Global 2009), pp. 163-174.
10. *"Taking Stock and Looking Ahead: The Future of U.S. Patent Law,"* Book Chapter in "The Future of the Patent System," Edited Volume Commemorating the 20th Anniversary of the Institute of Intellectual Property (IIP), Tokyo, Japan, 2009.
11. *Software as Governance*, with R. Shah, in **ELECTRONIC GOVERNMENT: INFORMATION TECHNOLOGY, AND TRANSFORMATION, ADVANCES IN MANAGEMENT INFORMATION SYSTEMS** (J. Scholl, ed., M.E. Sharpe, New York 2010), pp. 163-174.
12. *Thinking Through Active Defense in Cyberspace*, with C.M. Hayes, in **DETECTING CYBERATTACKS: INFORMING STRATEGIES AND DEVELOPING OPTIONS FOR U.S. POLICY**, The National Academies Press, 2010, pp. 327-341.
13. *The Law and Policy of Non-Compete Clauses in the United States and Their Implications*, with C. Hayes, in **BUSINESS INNOVATION AND THE LAW: PERSPECTIVES FROM INTELLECTUAL PROPERTY, LABOUR, COMPETITION AND CORPORATE LAW** (Marilyn Pittard, Ann L. Monotti, & John Duns, eds., Edward Elgar Press 2013), pp. 381-404.
14. *Legal and Regulatory Issues in the U.S.*, with T. Slating, in **COMPENDIUM OF BIOENERGY CROPS: CORN**, Chapter 10 (S.L. Goldman and C. Kole, eds., CRC Press, 2014), pp. 268-291.
15. *Law of Cyber Warfare*, with C.M. Hayes, in **INTERNATIONAL ENCYCLOPEDIA OF DIGITAL COMMUNICATION AND SOCIETY**, (S. Braman, ed., Wiley-Blackwell, 2015).
16. *Patent Eligible Subject Matter After Alice*, with C. Hayes, **RESEARCH HANDBOOK ON ELECTRONIC COMMERCE LAW**, Chapter 10 (John A. Rothchild, ed., Edward Elgar Publishing, 2016), pp. 235-257.
17. *Privacy, Law, and Cloud Services*, with C.M. Hayes, in **ENCYCLOPEDIA ON CLOUD COMPUTING** (Wiley, 2017).
18. *Standard Setting Organizations and FRAND Licensing*, with C. Hayes, in **COMPETITION POLICY-INTELLECTUAL PROPERTY** (R. Anderson, N. Carvalho & A. Taubman, eds., Cambridge Univ. Press, 2018) (forthcoming).
19. *The Political Economy of Intellectual Property Reforms*, with A. Gallo, in **Research Handbook on the Law and Economics of Intellectual Property, Vol. II** (P. Menell & D. Schwartz, eds., Edward Elgar Publishing Ltd. 2019) (forthcoming).
20. *Patent Trolls* in **Research Handbook on the Law and Economics of Intellectual Property, Vol. II** (P. Menell & D. Schwartz, eds., Edward Elgar Publishing Ltd. 2019) (forthcoming).

## **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).
6. U.S. Patent No. 7,388,488 issued on June 17, 2008, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli).
7. U.S. Patent No. 7,956,742 issued on June 7, 2011, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli and P.R. Cappello).
8. U.S. Patent No. 8,314,705 issued on Nov. 20, 2012, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli and P.R. Cappello).
9. U.S. Patent No. 8,558,668 issued Oct. 15, 2013, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli).
10. U.S. Patent No. 8,952,814 issued Feb. 10, 2015, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli and P.R. Cappello).
11. U.S. Patent No. 9,177,325 issued Nov. 3, 2015, "Network of tags" (with P. Lupoli).
12. U.S. Patent No. 9,218,520 issued on Dec. 22, 2015, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli and P.R. Cappello).
13. U.S. Patent No. 9,460,233 issued on Oct. 4, 2016, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli).
14. U.S. Patent No. 9,460,446 issued on Oct. 4, 2016, "Network of tags" (with P. Lupoli).
15. U.S. Patent No. 9,817,870 issued on Nov. 14, 2017, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli and P.R. Cappello).
16. U.S. Patent No. 9,792,624 issued on Oct. 17, 2017, "Network of tags" (with P. Lupoli).
17. U.S. Patent No. 9,785,810 issued on Oct. 10, 2017, "Method and system for storing, retrieving, and managing data for tags" (with P. Lupoli).
18. U.S. Patent No. 10,083,460 issued on Sept. 25, 2018, "Network of tags" (with P. Lupoli).

## LAW REVIEW PUBLICATIONS:

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 Shame 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. *Private Internet Governance*, 35 LOY. U. CHI. L.J. 87 (2003) (Invited contribution to Symposium on Technology and Governance: How the Internet has Changed Our Conception of Governance and Institutions).
12. *What Do Patents Purchase?: In Search of Optimal Ignorance in the Patent Office*, with S. Ghosh, 40 HOUS. L. REV. 1219 (2004).
13. *Optimizing Regulation of Electronic Commerce*, with A. Gallo, 72 U. CIN. L. REV. 1497 (2004).
14. *Deconstructing Code*, with R. Shah, 6 YALE J. L. & TECH. 277 (2004).
15. *Shaping Code*, with R. Shah, 18 HARV. J. L. & TECH. 319 (2005).

16. *The Market for Private Dispute Resolution Services: An Empirical Re-Assessment of ICANN/UDRP Performance*, with A. Gallo, 11 MICH. TELECOMM. & TECH. L. REV. 285 (2005).
17. *Why Do 'Bad' Patents Survive in the Market and How Should We Change? The Private and Social Costs of Patents*, with A. Gallo, 55 EMORY L.J. 61 (2006).
18. *Property Rights Legislation in Agricultural Biotechnology: United States and Argentina*, with A. Gallo, 7 MINN. J. L. SCI. & TECH. 565 (May 2006) (invited contribution).
19. *Licensing Restrictions and Appropriating Market Benefits from Plant Innovation*, 16 Fordham Intellectual Property, Media & Entertainment L.J. 1081 (2006) (symposium piece).
20. *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, with G. Ball, 84 WASH. UNIV. L. REV. 237 (formerly Washington University Law Quarterly) (2006).  
This article was among the Top 5 Most Downloaded Articles in All Fields on SSRN. It has now been downloaded over 2500 times.
21. *Setting Software Defaults: Perspectives from Law, Computer Science and Behavioral Economics*, with R. Shah, 82 NOTRE DAME L. REV. 583 (2006).
22. *The Political Economy of the Patent System*, with A. Gallo, 87 N.C. L. REV. 101 (symposium issue) (2009).
23. *Transferring Innovation*, 77 FORDHAM L. REV. 2169 (symposium issue) (2009).
24. *Optimal Hackback*, in symposium issue on *Data Devolution: Corporate Information Security, Consumers, and the Future of Regulation*, with R. Majuca, 84 CHI.-KENT L. REV. 831 (2010) (symposium piece).
25. *Understanding U.S. Ethanol Consumption: The Influence of State Level Incentives and Implications for Policy*, with A. Ohyama, 2011 U. ILL. L. REV. 435-474 (2011) (symposium issue on biofuel law & regulation).
26. *The Renewable Energy Policy Puzzle: Putting The Pieces Together*, 2011 U. ILL. L. REV. 333-339 (2011) (introduction to symposium issue on biofuel law & regulation).
27. *Judicial Experience and the Efficiency and Accuracy of Patent Adjudication: An Empirical Analysis of the Case for a Specialized Patent Trial Court*, with G. Ball, 24 HARV. J. L. & TECH. 393-467 (2011), with additional 9 page Online Appendix.
28. *Making Regulatory Innovation Keep Pace with Technological Innovation*, with T. Slating, 2011 WISC. L. REV. 1109-1179 (2011).
29. *Paving the Path to Accurately Predicting Legal Outcomes*, with D. Schwartz and T. Sichelman, 90 TEX. L. REV., See Also, 97-109 (2012).
30. *America Invents, More or Less?*, debate with J. Rantanen and L. Petherbridge, 160 U. PENN. L. REV., PENNumbra, 229-253 (2012).
31. *Mitigative Counterstriking: Self-Defense and Deterrence in Cyberspace*, with C.M. Hayes, 25 HARV. J. L. & TECH., 429-543 (Spring 2012).

32. *Information Privacy and Data Control in Cloud Computing: Consumers, Privacy Preferences, and Market Efficiency*, with C.M. Hayes and M.N. Bashir, 70 WASH. & LEE L. REV. 341-472 (2013).  
Reprinted in relevant part as, *Cloud Services, Contract terms, and Legal Rights*, 17 No. 6 JOURNAL OF INTERNET LAW 3, Dec. 2013.
33. *The Renewable Fuel Standard 3.0?: Moving Forward with the Federal Biofuel Mandate*, with T.A. Slating, 20 NYU UNIV. ENVTL. L.J. 374-506 (2014).
34. *FRAND's Forever: Standards, Patent Transfers, and Licensing Commitments*, with C. Hayes, 89 INDIANA L.J. 231-314 (2014).
35. *Analyzing the Role of Non-Practicing Entities in the Patent System*, with D. Schwartz, 99 CORNELL L. REV. 425-456 (2014).
36. *"Mastering" Patent Law: The Role and Impact of Special Masters in Patent Litigation*, with G. Ball, draft available on SSRN.
37. *Unpacking Patent Assertion Entities (PAEs)*, with C. Cotropia and D. Schwartz, 99 MINN. L. REV. 649-703 (2014).
38. *Creating a "Circle of Trust" to Further Digital Privacy and Cybersecurity Goals*, with C. Hayes, 2014 MICH. ST. L. REV. 1475-1560 (2014).
39. *The Case for Vertical Integration in the Developing Bioenergy Industry*, with I.F. Peres and T.A. Slating, 39 WILLIAM & MARY ENVTL L. & POL'Y REV. 575-656 (2015).
40. *Economic Rationales for the Patent System in Current Context*, 22:4 GEO. MASON L. REV. 897-924 (2015) (Invited Contribution).
41. *More Than Bric-À-Brac: Testing Chinese Exceptionalism In Patenting Behavior Using Comparative Empirical Analysis*, with A. Marco and R. Miller, 22 MICH. TELECOMM. & TECH. L. REV. 53-92 (2015).
42. *A Comprehensive Empirical Study of Data Privacy, Trust, and Consumer Autonomy*, with C.M. Hayes and M.N. Bashir, 91 INDIANA L.J. 267-352 (2016).
43. *The Role of Third-Party Institutions in Biomass Contracting: A Comparative Perspective*, with I.F. Peres, 28 GEO. ENVTL. L. REV. 219-259 (2016).
44. *Strategic Decision Making in Dual PTAB and District Court Proceedings*, with S. Vishnubhakat and A.K. Rai, 31:1 BERKELEY TECH L.J. 45-116 (2016).
45. *Bugs in the Market: Creating a Legitimate, Transparent, and Vendor-Focused Market for Software Vulnerabilities*, with C. Hayes, 58 ARIZ. L. REV. 753-830 (2016).
46. *Towards Patent Standardization*, with J. Freilich, 30 HARV. J. L. TECH. 233-256, Special Symposium Issue on Private Law and Intellectual Property (2017).
47. *An Empirical Study of the Impact of the Renewable Fuel Standard (RFS) on the Production of Fuel Ethanol in the U.S.*, with H.-S. Yang and I.F. Peres, 2017 UTAH L. REV. 159-206 (2017).
48. *Strengthening Cybersecurity with Cyber Insurance Markets and Better Risk Assessment*, with C. Hayes, 102 MINN. L. REV. 191-276 (2017).

49. *Liability for Data Injuries*, with C. Hayes, 2019 ILL. L. REV. 295-362 (2019)

50. *An Empirical Analysis of Milestones and Workload in Civil Litigation*, with C.A. Cotropia, K. Rozema and D.L. Schwartz, to be submitted to the law reviews (2019).