# Umesh P Agarwal

## List of Publications by Year
in descending order

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50

papers

5,085

citations

147801

31

h-index

214800

47

g-index

53

all docs

53

docs citations

53

times ranked

5467

citing authors

| # | ARTICLE | IF | CITATIONS |
|---|---|---|---|
| 1 | Current characterization methods for cellulose nanomaterials. Chemical Society Reviews, 2018, 47, 2609-2679. | 38.1 | 690 |
| 2 | Multi-scale visualization and characterization of lignocellulosic plant cell wall deconstruction during thermochemical pretreatment. Energy and Environmental Science, 2011, 4, 973. | 30.8 | 437 |
| 3 | Raman imaging to investigate ultrastructure and composition of plant cell walls: distribution of lignin and cellulose in black spruce wood (Picea mariana). Planta, 2006, 224, 1141-1153. | 3.2 | 364 |
| 4 | Restructuring the Crystalline Cellulose Hydrogen Bond Network Enhances Its Depolymerization Rate. Journal of the American Chemical Society, 2011, 133, 11163-11174. | 13.7 | 321 |
| 5 | FT-Raman Spectroscopy of Wood: Identifying Contributions of Lignin and Carbohydrate Polymers in the Spectrum of Black Spruce (Picea Mariana). Applied Spectroscopy, 1997, 51, 1648-1655. | 2.2 | 316 |
| 6 | Tailoring the yield and characteristics of wood cellulose nanocrystals (CNC) using concentrated acid hydrolysis. Cellulose, 2015, 22, 1753-1762. | 4.9 | 305 |
| 7 | A comparative study of cellulose nanofibrils disintegrated via multiple processing approaches. Carbohydrate Polymers, 2013, 97, 226-234. | 10.2 | 253 |
| 8 | Raman Microprobe Evidence for Lignin Orientation in the Cell Walls of Native Woody Tissue. Science, 1985, 227, 636-638. | 12.6 | 231 |
| 9 | Cellulose I crystallinity determination using FTâ€“Raman spectroscopy: univariate and multivariate methods. Cellulose, 2010, 17, 721-733. | 4.9 | 226 |
| 10 | FTâ€“Raman Investigation of Milled-Wood Lignins: Softwood, Hardwood, and Chemically Modified Black Spruce Lignins. Journal of Wood Chemistry and Technology, 2011, 31, 324-344. | 1.7 | 173 |
| 11 | Probing crystallinity of never-dried wood cellulose with Raman spectroscopy. Cellulose, 2016, 23, 125-144. | 4.9 | 120 |
| 12 | In-situ Raman microprobe studies of plant cell walls: Macromolecular organization and compositional variability in the secondary wall of Picea mariana (Mill.) B.S.P.. Planta, 1986, 169, 325-332. | 3.2 | 117 |
| 13 | 1064 nm FT-Raman spectroscopy for investigations of plant cell walls and other biomass materials. Frontiers in Plant Science, 2014, 5, 490. | 3.6 | 111 |
| 14 | Effect of sample moisture content on XRD-estimated cellulose crystallinity index and crystallite size. Cellulose, 2017, 24, 1971-1984. | 4.9 | 107 |
| 15 | Chemical modification of nanocellulose with canola oil fatty acid methyl ester. Carbohydrate Polymers, 2017, 169, 108-116. | 10.2 | 104 |
| 16 | Analysis of Cellulose and Lignocellulose Materials by Raman Spectroscopy: A Review of the Current Status. Molecules, 2019, 24, 1659. | 3.8 | 104 |
| 17 | Estimation of Cellulose Crystallinity of Lignocelluloses Using Near-IR FT-Raman Spectroscopy and Comparison of the Raman and Segal-WAXS Methods. Journal of Agricultural and Food Chemistry, 2013, 61, 103-113. | 5.2 | 100 |
| 18 | Using a fully recyclable dicarboxylic acid for producing dispersible and thermally stable cellulose nanomaterials from different cellulosic sources. Cellulose, 2017, 24, 2483-2498. | 4.9 | 77 |

| # | ARTICLE | IF | CITATIONS |
|---|---|---|---|
| 19 | New cellulose crystallinity estimation method that differentiates between organized and crystalline phases. Carbohydrate Polymers, 2018, 190, 262-270. | 10.2 | 70 |
| 20 | Techniques for Characterizing Lignin. , 2016, , 49-66. |  | 63 |
| 21 | Performance of high lignin content cellulose nanocrystals in poly(lactic acid). Polymer, 2018, 135, 305-313. | 3.8 | 59 |
| 22 | Nearâ€•IR surfaceâ€•enhanced Raman spectrum of lignin. Journal of Raman Spectroscopy, 2009, 40, 1527-1534. | 2.5 | 58 |
| 23 | Vibrational Spectroscopy. , 2010, , 103-136. |  | 54 |
| 24 | Towards sustainable production and utilization of plant-biomass-based nanomaterials: a review and analysis of recent developments. Biotechnology for Biofuels, 2021, 14, 114. | 6.2 | 51 |
| 25 | Spatially Resolved Characterization of Cellulose Nanocrystalâ€“Polypropylene Composite by Confocal Raman Microscopy. Applied Spectroscopy, 2012, 66, 750-756. | 2.2 | 48 |
| 26 | Assignment of the Photoyellowing-Related 1675 cm<sup>âˆ’1</sup>Raman/IR Band to P-Quinones and Its Implications to the Mechanism of Color Reversion in Mechanical Pulps. Journal of Wood Chemistry and Technology, 1998, 18, 381-402. | 1.7 | 47 |
| 27 | Enzymatic hydrolysis of loblolly pine: effects of cellulose crystallinity and delignification. Holzforschung, 2013, 67, 371-377. | 1.9 | 44 |
| 28 | Production of high lignin-containing and lignin-free cellulose nanocrystals from wood. Cellulose, 2018, 25, 5791-5805. | 4.9 | 43 |
| 29 | Towards the scalable isolation of cellulose nanocrystals from tunicates. Scientific Reports, 2020, 10, 19090. | 3.3 | 39 |
| 30 | Determination of ethylenic residues in wood and TMP of spruce by FT-Raman spectroscopy. Holzforschung, 2008, 62, 667-675. | 1.9 | 37 |
| 31 | Sequential Treatment of Mechanical and Chemimechanical Pulps with Light and Heat: A Raman Spectroscopic Study. Holzforschung, 1995, 49, 300-312. | 1.9 | 34 |
| 32 | Photoyellowing of Thermomechanical Pulps: Looking Beyond Î±-Carbonyl and Ethylenic Groups as the Initiating Structures. Journal of Wood Chemistry and Technology, 1997, 17, 1-26. | 1.7 | 32 |
| 33 | Detection and quantitation of cellulose II by Raman spectroscopy. Cellulose, 2021, 28, 9069-9079. | 4.9 | 31 |
| 34 | â€œSelf-Absorptionâ€•Phenomenon in Near-Infrared Fourier Transform Raman Spectroscopy of Cellulosic and Lignocellulosic Materials. Applied Spectroscopy, 2005, 59, 385-388. | 2.2 | 26 |
| 35 | Preparation and Characterization of the Nanocomposites from Chemically Modified Nanocellulose and Poly(lactic acid). Journal of Renewable Materials, 2017, 5, 410-422. | 2.2 | 21 |
| 36 | Characterization of the supramolecular structures of cellulose nanocrystals of different origins. Cellulose, 2021, 28, 1369-1385. | 4.9 | 19 |

| # | ARTICLE | IF | CITATIONS |
|---|---|---|---|
| 37 | Contributions of Crystalline and Noncrystalline Cellulose Can Occur in the Same Spectral Regions: Evidence Based on Raman and IR and Its Implication for Crystallinity Measurements. Biomacromolecules, 2021, 22, 1357-1373. | 5.4 | 18 |
| 38 | Estimation of Syringyl Units in Wood Lignins by FT-Raman Spectroscopy. Journal of Agricultural and Food Chemistry, 2019, 67, 4367-4374. | 5.2 | 17 |
| 39 | Raman Spectroscopy in the Analysis of Cellulose Nanomaterials. ACS Symposium Series, 2017, , 75-90. | 0.5 | 16 |
| 40 | Vibration relaxation of hydrogen-bonded species in solution. IV. Temperature and concentration dependence of the Î½a (OHî—¸N) band of phenol-pyridine. Chemical Physics, 1983, 74, 35-41. | 1.9 | 14 |
| 41 | Raman Spectral Features Associated with Chromophores in High-Yield Pulps. Journal of Wood Chemistry and Technology, 1994, 14, 227-241. | 1.7 | 14 |
| 42 | Impacts of fiber orientation and milling on observed crystallinity in jack pine. Wood Science and Technology, 2014, 48, 1213-1227. | 3.2 | 13 |
| 43 | Formation and Identification of Cis/Trans Ferulic Acid in Photoyellowed White Spruce Mechanical Pulp. Journal of Wood Chemistry and Technology, 1990, 10, 169-190. | 1.7 | 11 |
| 44 | Pilot-Scale Production of Cellulosic Nanowhiskers With Similar Morphology to Cellulose Nanocrystals. Frontiers in Bioengineering and Biotechnology, 2020, 8, 565084. | 4.1 | 11 |
| 45 | Oxidative delignification: The roles of lignin reactivity and accessibility. Journal of Cleaner Production, 2022, 363, 132351. | 9.3 | 9 |
| 46 | Raman Spectroscopic Evidence for Coniferyl Alcohol Structures in Bleached and Sulfonated Mechanical Pulps. ACS Symposium Series, 1993, , 26-44. | 0.5 | 7 |
| 47 | Thermal Conversion of Pine Wood Char to Carbon Nanomaterials in the Presence of Iron Nanoparticles. Forest Products Journal, 2012, 62, 462-466. | 0.4 | 5 |
| 48 | The Nanostructures of Native Celluloses, Their Transformations upon Isolation, and Their Implications for Production of Nanocelluloses. ACS Symposium Series, 2017, , 1-18. | 0.5 | 3 |
| 49 | Beyond Crystallinity: Using Raman Spectroscopic Methods to Further Define Aggregated/Supramolecular Structure of Cellulose. Frontiers in Energy Research, 2022, 10, . | 2.3 | 2 |
| 50 | Swelling by Hydrochloric Acid Partially Retains Cellulose-I Type Allomorphic Ultrastructure But Enhances Susceptibility toward Cellulase Hydrolysis Such as Highly Amorphous Cellulose. ACS Symposium Series, 2019, , 69-88. | 0.5 | 1 |