

ESI Highly Cited Papers in September 2024

1. [Handheld high-throughput plasmonic biosensor using computational on-chip imaging](#)
Arif E Cetin, Ahmet F Coskun, Betty C Galarreta, Min Huang, David Herman, Aydogan Ozcan & Hatice Altug
Light Sci Appl **3**, e122 (2014). DOI: 10.1038/lisa.2014.3
2. [Healthy, natural, efficient and tunable lighting: four-package white LEDs for optimizing the circadian effect, color quality and vision performance](#)
Ji Hye Oh, Su Ji Yang & Young Rag Do
Light Sci Appl **3**, e141 (2014). DOI: 10.1038/lisa.2014.22
3. [Ultrafast lasers-reliable tools for advanced materials processing](#)
Koji Sugioka & Ya Cheng
Light Sci Appl **3**, e149 (2014). DOI: 10.1038/lisa.2014.30
4. [Metallic nanostructures for light trapping in energy-harvesting devices](#)
Chuan Fei Guo, Tianyi Sun, Feng Cao, Qian Liu & Zhifeng Ren
Light Sci Appl **3**, e161 (2014). DOI: 10.1038/lisa.2014.42
5. [Adaptive optical microscopy: the ongoing quest for a perfect image](#)
Martin J Booth
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6. [Generating optical orbital angular momentum at visible wavelengths using a plasmonic metasurface](#)
Ebrahim Karimi, Sebastian A Schulz, Israel De Leon, Hammam Qassim, Jeremy Upham & Robert W Boyd
Light Sci Appl **3**, e167 (2014). DOI: 10.1038/lisa.2014.48
7. [Optical storage arrays: a perspective for future big data storage](#)
Min Gu, Xiangping Li & Yaoyu Cao
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8. [Light scattering and surface plasmons on small spherical particles](#)
Xiaofeng Fan, Weitao Zheng & David J Singh
Light Sci Appl **3**, e179 (2014). DOI: 10.1038/lisa.2014.60
9. [Design and fabrication of broadband ultralow reflectivity black Si surfaces by laser micro/nanoprocessing](#)
Jing Yang, Fangfang Luo, Tsung Sheng Kao, Xiong Li, Ghim Wei Ho, Jinghua Teng, Xiangang Luo & Minghui Hong
Light Sci Appl **3**, e185 (2014). DOI: 10.1038/lisa.2014.66
10. [Fundamentals of phase-only liquid crystal on silicon \(LCOS\) devices](#)
Zichen Zhang, Zheng You & Daping Chu
Light Sci Appl **3**, e213 (2014). DOI: 10.1038/lisa.2014.94
11. [Coding metamaterials, digital metamaterials and programmable metamaterials](#)
Tie Jun Cui, Mei Qing Qi, Xiang Wan, Jie Zhao & Qiang Cheng
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12. [Observation of efficient population of the red-emitting state from the green state by non-multiphonon relaxation in the Er³⁺-Yb³⁺ system](#)
Jiahua Zhang, Zhendong Hao, Jing Li, Xia Zhang, Yongshi Luo & Guohui Pan
Light Sci Appl **4**, e239 (2015). DOI: 10.1038/lisa.2015.12
13. [Massive individual orbital angular momentum channels for multiplexing enabled by Dammann gratings](#)
Ting Lei, Meng Zhang, Yuru Li, Ping Jia, Gordon Ning Liu, Xiaogeng Xu, Zhaohui Li, Changjun Min, Jiao Lin, Changyuan Yu, Hanben Niu & Xiaocong Yuan
Light Sci Appl **4**, e257 (2015). DOI: 10.1038/lisa.2015.30
14. [Advances in InGaAs/InP single-photon detector systems for quantum communication](#)
Jun Zhang, Mark A Itzler, Hugo Zbinden & Jian-Wei Pan
Light Sci Appl **4**, e286 (2015). DOI: 10.1038/lisa.2015.59
15. [Giant photonic spin Hall effect in momentum space in a structured metamaterial with spatially varying birefringence](#)
Xiaohui Ling, Xinxing Zhou, Xunong Yi, Weixing Shu, Yachao Liu, Shizhen Chen, Hailu Luo, Shuangchun Wen & Dianyuan Fan
Light Sci Appl **4**, e290 (2015). DOI: 10.1038/lisa.2015.63
16. [Nanoplasmonic waveguides: towards applications in integrated nanophotonic circuits](#)
Yurui Fang & Mengtao Sun
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17. [Optical tuning of exciton and trion emissions in monolayer phosphorene](#)
Jiong Yang, Renjing Xu, Jiajie Pei, Ye Win Myint, Fan Wang, Zhu Wang, Shuang Zhang, Zongfu Yu & Yuerui Lu
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18. [Broadband diffusion of terahertz waves by multi-bit coding metasurfaces](#)
Li-Hua Gao, Qiang Cheng, Jing Yang, Shao-Jie Ma, Jie Zhao, Shuo Liu, Hai-Bing Chen, Qiong He, Wei-Xiang Jiang, Hui-Feng Ma, Qi-Ye Wen, Lan-Ju Liang, Biao-Bing Jin, Wei-Wei Liu, Lei Zhou, Jian-Quan Yao, Pei-Heng Wu & Tie-Jun Cui
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19. [On-chip light sources for silicon photonics](#)
Zhiping Zhou, Bing Yin & Jurgen Michel
Light Sci Appl **4**, e358 (2015). DOI: 10.1038/lisa.2015.131
20. [Tailoring color emissions from N-doped graphene quantum dots for bioimaging applications](#)
Dan Qu, Min Zheng, Jing Li, Zhigang Xie & Zaicheng Sun
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21. [Photoexcitation dynamics in solution-processed formamidinium lead iodide perovskite thin films for solar cell applications](#)
Hong-Hua Fang, Feng Wang, Sampson Adjokatse, Ni Zhao, Jacky Even & Maria Antonietta Loi
Light Sci Appl **5**, e16056 (2016). DOI: 10.1038/lisa.2016.56
22. [High-efficiency surface plasmon meta-couplers: concept and microwave-regime realizations](#)
Wujiong Sun, Qiong He, Shulin Sun & Lei Zhou
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23. [Anisotropic coding metamaterials and their powerful manipulation of differently polarized terahertz waves](#)
Shuo Liu, Tie Jun Cui, Quan Xu, Di Bao, Liangliang Du, Xiang Wan, Wen Xuan Tang, Chunmei Ouyang, Xiao Yang Zhou, Hao Yuan, Hui Feng Ma, Wei Xiang Jiang, Jiaguang Han, Weili Zhang & Qiang Cheng
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24. [Energy transfer in plasmonic photocatalytic composites](#)
Xiang-Chao Ma, Ying Dai, Lin Yu & Bai-Biao Huang
Light Sci Appl **5**, e16017 (2016). DOI: 10.1038/lisa.2016.17
25. [A single Eu²⁺-activated high-color-rendering oxychloride white-light phosphor for white-light-emitting diodes](#)
Peng-Peng Dai, Cong Li, Xin-Tong Zhang, Jun Xu, Xi Chen, Xiu-Li Wang, Yan Jia, Xiaojun Wang & Yi-Chun Liu
Light Sci Appl **5**, e16024 (2016). DOI: 10.1038/lisa.2016.24
26. [Supra-\(carbon nanodots\) with a strong visible to near-infrared absorption band and efficient photothermal conversion](#)
Di Li, Dong Han, Song-Nan Qu, Lei Liu, Peng-Tao Jing, Ding Zhou, Wen-Yu Ji, Xiao-Yun Wang, Tong-Fei Zhang & De-Zhen Shen
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27. [New function of the Yb³⁺ ion as an efficient emitter of persistent luminescence in the short-wave infrared](#)
Yan-Jie Liang, Feng Liu, Ya-Fei Chen, Xiao-Jun Wang, Kang-Ning Sun & Zhengwei Pan
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28. [Ultrafast laser processing of materials: from science to industry](#)
Mangirdas Malinauskas, Albertas Žukauskas, Satoshi Hasegawa, Yoshio Hayasaki, Vyngantas Mizeikis, Ričardas Buividas & Saulius Juodkazis
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29. [Experimental quantum secure direct communication with single photons](#)
Jian-Yong Hu, Bo Yu, Ming-Yong Jing, Lian-Tuan Xiao, Suo-Tang Jia, Guo-Qing Qin & Gui-Lu Long
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30. [Ca_{1-x}Li_xAl_{1-x}Si_{1+x}N₃:Eu²⁺ solid solutions as broadband, color-tunable and thermally robust red phosphors for superior color rendition white light-emitting diodes](#)
Le Wang, Rong-Jun Xie, Yuanqiang Li, Xiaojun Wang, Chong-Geng Ma, Dong Luo, Takashi Takeda, Yi-Ting Tsai, Ru-Shi Liu & Naoto Hirotsuki
Light Sci Appl **5**, e16155 (2016). DOI: 10.1038/lisa.2016.155
31. [Information entropy of coding metasurface](#)
Tie-Jun Cui, Shuo Liu & Lian-Lin Li
Light Sci Appl **5**, e16172 (2016). DOI: 10.1038/lisa.2016.172
32. [Control over emissivity of zero-static-power thermal emitters based on phase-changing material GST](#)
Kai-Kai Du, Qiang Li, Yan-Biao Lyu, Ji-Chao Ding, Yue Lu, Zhi-Yuan Cheng & Min Qiu
Light Sci Appl **6**, e16194 (2017). DOI: 10.1038/lisa.2016.194
33. [Tomographic flow cytometry by digital holography](#)
Francesco Merola, Pasquale Memmolo, Lisa Miccio, Roberto Savoia, Martina Mugnano, Angelo Fontana, Giuliana D'Ippolito, Angela Sardo, Achille Iolascon, Antonella Gambale & Pietro Ferraro
Light Sci Appl **6**, e16241 (2017). DOI: 10.1038/lisa.2016.241
34. [Quantification of light-enhanced ionic transport in lead iodide perovskite thin films and its solar cell applications](#)
Yi-Cheng Zhao, Wen-Ke Zhou, Xu Zhou, Kai-Hui Liu, Da-Peng Yu & Qing Zhao
Light Sci Appl **6**, e16243 (2017). DOI: 10.1038/lisa.2016.243
35. [Parametric down-conversion photon-pair source on a nanophotonic chip](#)
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36. [Generation of wavelength-independent subwavelength Bessel beams using metasurfaces](#)
Wei Ting Chen, Mohammadreza Khorasaninejad, Alexander Y. Zhu, Jaewon Oh, Robert C. Devlin, Aun Zaidi & Federico Capasso
Light Sci Appl **6**, e16259 (2017). DOI: 10.1038/lisa.2016.259
37. [Three-dimensional chiral microstructures fabricated by structured optical vortices in isotropic material](#)
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38. [Ultrasensitive broadband phototransistors based on perovskite/organic-semiconductor vertical heterojunctions](#)
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40. [Freeform spectrometer enabling increased compactness](#)
Jacob Reimers, Aaron Bauer, Kevin P Thompson & Jannick P Rolland
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41. [Optical manipulation from the microscale to the nanoscale: fundamentals, advances and prospects](#)
Dongliang Gao, Weiqiang Ding, Manuel Nieto-Vesperinas, Xumin Ding, Mahdy Rahman, Tianhang Zhang, ChweeTeck Lim & Cheng-Wei Qiu
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42. [Going beyond the limit of an LCD's color gamut](#)
Hai-Wei Chen, Rui-Dong Zhu, Juan He, Wei Duan, Wei Hu, Yan-Qing Lu, Ming-Chun Li, Seok-Lyul Lee, Ya-Jie Dong & Shin-Tson Wu
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43. [Beam switching and bifocal zoom lensing using active plasmonic metasurfaces](#)
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44. [Electrons dynamics control by shaping femtosecond laser pulses in micro/nanofabrication: modeling, method, measurement and application](#)
Lan Jiang, An-Dong Wang, Bo Li, Tian-Hong Cui & Yong-Feng Lu
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45. [Phase recovery and holographic image reconstruction using deep learning in neural networks](#)
Yair Rivenson, Yibo Zhang, Harun Günaydın, Da Teng & Aydogan Ozcan
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46. [Twisted photons: new quantum perspectives in high dimensions](#)
Manuel Erhard, Robert Fickler, Mario Krenn & Anton Zeilinger
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47. [Giant intrinsic chiro-optical activity in planar dielectric nanostructures](#)
Alexander Y Zhu, Wei Ting Chen, Aun Zaidi, Yao-Wei Huang, Mohammadreza Khorasaninejad, Vyshakh Sanjeev, Cheng-Wei Qiu & Federico Capasso
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48. [Liquid crystal display and organic light-emitting diode display: present status and future perspectives](#)
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49. [Boron nitride nanoresonators for phonon-enhanced molecular vibrational spectroscopy at the strong coupling limit](#)
Marta Autore, Peining Li, Irene Dolado, Francisco J Alfaro-Mozaz, Ruben Esteban, Ainhoa Atxabal, Fèlix Casanova, Luis E Hueso, Pablo Alonso-González, Javier Aizpurua, Alexey Y Nikitin, Saül Vélez & Rainer Hillenbrand
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50. [Quenching of the red Mn⁴⁺ luminescence in Mn⁴⁺-doped fluoride LED phosphors](#)
Tim Senden, Relinde J.A. van Dijk-Moes & Andries Meijerink
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51. [Reflective chiral meta-holography: multiplexing holograms for circularly polarized waves](#)
Qiu Wang, Eric Plum, Quanlong Yang, Xueqian Zhang, Quan Xu, Yuehong Xu, Jiaguang Han & Weili Zhang
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52. [Thermal camouflage based on the phase-changing material GST](#)
Yurui Qu, Qiang Li, Lu Cai, Meiyang Pan, Pintu Ghosh, Kaikai Du & Min Qiu
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53. [All-optical active THz metasurfaces for ultrafast polarization switching and dynamic beam splitting](#)
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54. [Strategies for reducing speckle noise in digital holography](#)
Vittorio Bianco, Pasquale Memmolo, Marco Leo, Silvio Montresor, Cosimo Distante, Melania Paturzo, Pascal Picart, Bahram Javidi & Pietro Ferraro
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55. [Looking at sound: optoacoustics with all-optical ultrasound detection](#)
Georg Wissmeyer, Miguel A. Pleitez, Amir Rosenthal & Vasilis Ntziachristos
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56. [A hybrid invisibility cloak based on integration of transparent metasurfaces and zero-index materials](#)
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57. [Hybrid graphene metasurfaces for high-speed mid-infrared light modulation and single-pixel imaging](#)
Beibei Zeng, Zhiqin Huang, Akhilesh Singh, Yu Yao, Abul K. Azad, Aditya D. Mohite, Antoinette J. Taylor, David R. Smith & Hou-Tong Chen
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58. [Plasmonic nanostructure design and characterization via Deep Learning](#)
Itzik Malkiel, Michael Mrejen, Achiya Nagler, Uri Arieli, Lior Wolf & Haim Suchowski
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Babak Rahmani, Damien Loterie, Georgia Konstantinou, Demetri Psaltis & Christophe Moser
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60. [Broadband achromatic dielectric metalenses](#)
Sajan Shrestha, Adam C. Overvig, Ming Lu, Aaron Stein & Nanfang Yu
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61. [X-ray-activated long persistent phosphors featuring strong UVC afterglow emissions](#)
Yan-Min Yang, Zhi-Yong Li, Jun-Ying Zhang, Yue Lu, Shao-Qiang Guo, Qing Zhao, Xin Wang, Zi-Jun Yong, Hong Li, Ju-Ping Ma, Yoshihiro Kuroiwa, Chikako Moriyoshi, Li-Li Hu, Li-Yan Zhang, Li-Rong Zheng & Hong-Tao Sun
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62. [In vivo theranostics with near-infrared-emitting carbon dots-highly efficient photothermal therapy based on passive targeting after intravenous administration](#)
Xin Bao, Ye Yuan, Jingqin Chen, Bohan Zhang, Di Li, Ding Zhou, Pengtao Jing, Guiying Xu, Yingli Wang, Kateřina Holá, Dezhen Shen, Changfeng Wu, Liang Song, Chengbo Liu, Radek Zbořil & Songnan Qu
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64. [High-fidelity multimode fibre-based endoscopy for deep brain in vivo imaging](#)
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65. [Multichannel vectorial holographic display and encryption](#)
Ruizhe Zhao, Basudeb Sain, Qunshuo Wei, Chengchun Tang, Xiaowei Li, Thomas Weiss, Lingling Huang, Yongtian Wang & Thomas Zentgraf
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66. [Interference-assisted kaleidoscopic meta-plexer for arbitrary spin-wavefront manipulation](#)
He-Xiu Xu, Guangwei Hu, Ying Li, Lei Han, Jianlin Zhao, Yunming Sun, Fang Yuan, Guang-Ming Wang, Zhi Hao Jiang, Xiaohui Ling, Tie Jun Cui & Cheng-Wei Qiu
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Hangyong Shan, Ying Yu, Xingli Wang, Yang Luo, Shuai Zu, Bowen Du, Tianyang Han, Bowen Li, Yu Li, Jiarui Wu, Feng Lin, Kebin Shi, Beng Kang Tay, Zheng Liu, Xing Zhu & Zheyu Fang
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Niels M. Israelsen, Christian R. Petersen, Ajanta Barh, Deepak Jain, Mikkel Jensen, Günther Hanneschläger, Peter Tidemand-Lichtenberg, Christian Pedersen, Adrian Podoleanu & Ole Bang
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69. [New strategy for designing orangish-red-emitting phosphor via oxygen-vacancy-induced electronic localization](#)
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71. [Implementation and security analysis of practical quantum secure direct communication](#)
Ruoyang Qi, Zhen Sun, Zaisheng Lin, Penghao Niu, Wentao Hao, Liyuan Song, Qin Huang, Jiancun Gao, Liuguo Yin & Gui-Lu Long
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72. [Optical orbital-angular-momentum-multiplexed data transmission under high scattering](#)
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73. [Emerging ultra-narrow-band cyan-emitting phosphor for white LEDs with enhanced color rendition](#)
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74. [Artificial neural networks enabled by nanophotonics](#)
Qiming Zhang, Haoyi Yu, Martina Barbiero, Baokai Wang & Min Gu
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75. [3D Janus plasmonic helical nanoapertures for polarization-encrypted data storage](#)
Yang Chen, Xiaodong Yang & Jie Gao
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76. [High-efficiency, large-area, topology-optimized metasurfaces](#)
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77. [Soliton bursts and deterministic dissipative Kerr soliton generation in auxiliary-assisted microcavities](#)
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81. [Deep learning in holography and coherent imaging](#)
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82. [Single-photon avalanche diode imagers in biophotonics: review and outlook](#)
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84. [Optical vortices 30 years on: OAM manipulation from topological charge to multiple singularities](#)
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85. [Dielectric metasurfaces for complete and independent control of the optical amplitude and phase](#)
Adam C. Overvig, Sajan Shrestha, Stephanie C. Malek, Ming Lu, Aaron Stein, Changxi Zheng & Nanfang Yu
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86. [High-speed colour-converting photodetector with all-inorganic CsPbBr₃ perovskite nanocrystals for ultraviolet light communication](#)
Chun Hong Kang, Ibrahim Dursun, Guangyu Liu, Lutfan Sinatra, Xiaobin Sun, Meiwei Kong, Jun Pan, Partha Maity, Ee-Ning Ooi, Tien Khee Ng, Omar F. Mohammed, Osman M. Bakr & Boon S. Ooi
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87. [Intelligent metasurface imager and recognizer](#)
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