**Cảm biến siêu âm: hoạt động và ứng dụng**

(Cập nhật đến ngày 21/4/2023)

Cảm biến siêu âm là thiết bị cảm biến điện tử, được dùng để đo khoảng cách của một đối tượng mục tiêu bằng cách phát ra sóng siêu âm, sau đó âm thanh phản xạ được chuyển đổi thành tín hiệu điện. Tín hiệu sẽ được xử lý và thông báo ở đầu ra. Bộ phát của cảm biến có khả năng tạo ra âm thanh nhờ sử dụng tinh thể áp điện. Còn bộ thu có vai trò tiếp nhận âm thanh đến và đi từ các vị trí.

Để hiểu rõ hơn Cục Thông tin KH&CN quốc gia xin giới thiệu một số bài nghiên cứu đã được xuất bản chính thức và các bài viết được chấp nhận đăng trên những cơ sở dữ liệu học thuật chính thống.



**1. Sciencedirect**

1. Theoretical investigation of transition metal dichalcogenides based Bloch surface wave sensors with mono and double absentee layers
Results in Optics 14 February 2023 Volume 11 (Cover date: May 2023) Article 100384
Tianqi Li, Shujing Chen, Chengyou Lin
<https://www.sciencedirect.com/science/article/pii/S2666950123000366/pdfft?md5=2c252751309cc1ee422d6e45629432a5&pid=1-s2.0-S2666950123000366-main.pdf>

2. High-performance detection of endotoxin by the microfluidic chip integrated with surface acoustic wave sensor modified by Ti3C2Tx/Au NPs nanocomposite
Applied Surface Science 13 January 2023 Volume 618 (Cover date: 1 May 2023) Article 156423
Xiaoli Wang, Xinyu He, Yi Xu
<https://www.sciencedirect.com/science/article/pii/S0169433223000995/pdfft?md5=07c6462d97423497b511d1c09210679f&pid=1-s2.0-S0169433223000995-main.pdf>

3. Mid-infrared evanescent wave sensor based on side-polished chalcogenide fiber
Ceramics International 14 September 2022 Volume 49, Issue 1 (Cover date: 1 January 2023) Pages 1291-1297
Yitao Yang, Kaixin Ge, Peiqing Zhang
<https://www.sciencedirect.com/science/article/pii/S0272884222032849/pdfft?md5=d4d7f55a33847111225d50c1d04f1c21&pid=1-s2.0-S0272884222032849-main.pdf>

4. Evanescent wave sensor for potassium ion detection with special reference to agricultural application
Journal of Photochemistry and Photobiology A: Chemistry 20 March 2023 Volume 441 (Cover date: 1 July 2023) Article 114707
Revati P. Potdar, Yogesh B. Khollam, Pravin S. More
<https://www.sciencedirect.com/science/article/pii/S1010603023001727/pdfft?md5=05b09d8bb00f44b326726e23b570210d&pid=1-s2.0-S1010603023001727-main.pdf>

5. Boron doped g-C3N4 quantum dots based highly sensitive surface acoustic wave NO2 sensor with faster gas kinetics under UV light illumination
Sensors and Actuators B: Chemical 15 December 2022 Volume 378 (Cover date: 1 March 2023) Article 133140
Kedhareswara Sairam Pasupuleti, Sayandeep Ghosh, Moon-Deock Kim
<https://www.sciencedirect.com/science/article/pii/S092540052201783X/pdfft?md5=77dcf9afdd5681d6da62a221bc1184ae&pid=1-s2.0-S092540052201783X-main.pdf>

6. Surface wave-based 1D-PhC sensor using barium sodium niobate film thickness
Materials Today: Proceedings Available online 23 March 2023 In press, corrected proof
Kalpana Sagar, Ajay Kumar
<https://www.sciencedirect.com/science/article/pii/S2214785323012634/pdfft?md5=13ec21996ea8276528ca453ec1b70a86&pid=1-s2.0-S2214785323012634-main.pdf>

7. Si-Cu nanocomposite as an effective sensing layer for H2S based on quartz surface acoustic wave sensors
Sensors and Actuators A: Physical 7 February 2023 Volume 353 (Cover date: 16 April 2023) Article 114225
Jian Che, Junsen Wang, Yongliang Tang
<https://www.sciencedirect.com/science/article/pii/S0924424723000742/pdfft?md5=d5d85a656225e8a0ac19ce55acf08ab5&pid=1-s2.0-S0924424723000742-main.pdf>

8. Wireless surface acoustic wave humidity sensor with chitosan/porous cyclodextrin–TiO2 composites for monitoring air and human respiration
Sensors and Actuators B: Chemical 28 December 2022 Volume 379 (Cover date: 15 March 2023) Article 133235
Fu Zheng, Mingji Li, Hongji Li
<https://www.sciencedirect.com/science/article/pii/S0925400522018780/pdfft?md5=5515f10d35b176055c3b41ca6b0dc04e&pid=1-s2.0-S0925400522018780-main.pdf>

9. Realtime wide-area vehicle trajectory tracking using millimeter-wave radar sensors and the open TJRD TS dataset
International Journal of Transportation Science and Technology 16 March 2022 Volume 12, Issue 1 (Cover date: March 2023) Pages 273-290
Junhua Wang, Ting Fu, Qiangqiang Shangguan
<https://www.sciencedirect.com/science/article/pii/S2046043022000247/pdfft?md5=d1ebf340eafa4d26663b0cd50011431e&pid=1-s2.0-S2046043022000247-main.pdf>

10. Directional wave measurements from navigational buoys
Ocean Engineering 9 December 2022 Volume 268 (Cover date: 15 January 2023) Article 113161
Camilla Saetre, Harald Tholo, Anne Karin Magnusson
<https://www.sciencedirect.com/science/article/pii/S0029801822024441/pdfft?md5=865c5f04be1d2a6a2424590d52ae50a9&pid=1-s2.0-S0029801822024441-main.pdf>

11. Chalcogenide glass-tapered fiber sensor modified by graphene oxide doped with platinum nanoparticles for high-sensitivity measurement
Results in Physics 9 March 2023 Volume 47 (Cover date: April 2023) Article 106348
Xiaomei Wang, Chaoqi Wang, Shixun Dai
<https://www.sciencedirect.com/science/article/pii/S2211379723001419/pdfft?md5=d56b7c15fcc773a0704402c4e174ea68&pid=1-s2.0-S2211379723001419-main.pdf>

12. Realization of a DNA biosensor using inverted Lamb wave MEMS resonator based on ZnO/SiO2/Si/ZnO membrane
Analytica Chimica Acta 8 February 2023 Volume 1249 (Cover date: 8 April 2023) Article 340929
Manisha Bharati, Lokesh Rana, Monika Tomar
<https://www.sciencedirect.com/science/article/pii/S0003267023001502/pdfft?md5=e17cded677a22fece0eed2a783bd9651&pid=1-s2.0-S0003267023001502-main.pdf>

13. Computer vision-based measurement of wave force on the rectangular structure
Ocean Engineering 16 January 2023 Volume 270 (Cover date: 15 February 2023) Article 113624
Jinzhao Li, Xuan Kong, Jiexuan Hu
<https://www.sciencedirect.com/science/article/pii/S0029801823000082/pdfft?md5=1c1936b2f759a8428b783e4203ba9630&pid=1-s2.0-S0029801823000082-main.pdf>

14. A general self-powered wireless sensing solution based on triboelectric-discharge effect
Nano Energy 4 November 2022 Volume 105 (Cover date: January 2023) Article 107982
Haoyu Wang, Xin Xia, Yunlong Zi
<https://www.sciencedirect.com/science/article/pii/S2211285522010606/pdfft?md5=7be838c042730ffbad380f2b09731c27&pid=1-s2.0-S2211285522010606-main.pdf>

15. Quantitative identification of damage in composite structures using sparse sensor arrays and multi-domain-feature fusion of guided waves
Measurement 13 January 2023 Volume 208 (Cover date: 28 February 2023) Article 112482
Lingquan Tangm, Yehai Lim, Dong Yue
<https://www.sciencedirect.com/science/article/pii/S0263224123000465/pdfft?md5=15c9fba5b75358dc1d9850bbfacc3e15&pid=1-s2.0-S0263224123000465-main.pdf>

16. Illustration of an extremely sensitive SPR based fiber optic gas sensor irradiated by Bessel-Gauss beam and wave theory based approach
Optik 26 January 2023 Volume 275 (Cover date: March 2023) Article 170599
Nabamita Goswami, Sanoj Kumar Yadav, Ardhendu Saha
<https://www.sciencedirect.com/science/article/pii/S0030402623000955/pdfft?md5=6b32b2618a9db18cffca9ceebade3718&pid=1-s2.0-S0030402623000955-main.pdf>

17. Perceptual echoes as travelling waves may arise from two discrete neuronal sources
NeuroImage 29 March 2023 Volume 272 (Cover date: 15 May 2023) Article 120047
Alexander Zhigalov, Ole Jensen
<https://www.sciencedirect.com/science/article/pii/S1053811923001933/pdfft?md5=78ce1dd8ffa279ed851ba7bf562a564a&pid=1-s2.0-S1053811923001933-main.pdf>

18. Studies of surface plasmon resonance effect on different metallic layers of silver (Ag) and copper (Cu) with molybdenum trioxide (MoO3) for formaldehyde sensor
Results in Optics 11 February 2023 Volume 11 (Cover date: May 2023) Article 100374
R. Zakaria, M. Mahbub, C. S. Lim
<https://www.sciencedirect.com/science/article/pii/S2666950123000263/pdfft?md5=9f738a64d8ee78a3b51bd29a230d5e80&pid=1-s2.0-S2666950123000263-main.pdf>

19. A mathematical analysis of anti-plane surface wave in a magneto-electro-elastic layered structure with non-perfect and locally perturbed interface
European Journal of Mechanics - A/Solids 2 November 2022 Volume 97 (Cover date: January–February 2023) Article 104820
Mriganka Shekhar Chaki, Julián Bravo-Castillero
<https://www.sciencedirect.com/science/article/pii/S0997753822002509/pdfft?md5=1bb076f03815e9a501dba3c5437303e9&pid=1-s2.0-S0997753822002509-main.pdf>

20. Wireless portable transducer for nondestructive evaluation applications based on highly nonlinear solitary waves
Measurement 24 March 2023 Volume 214 (Cover date: 15 June 2023) Article 112760
Madison Hodgson, Piervincenzo Rizzo, Samuel J. Dickerson
<https://www.sciencedirect.com/science/article/pii/S026322412300324X/pdfft?md5=da1c140b0c0061f6f652f2e0858a8a84&pid=1-s2.0-S026322412300324X-main.pdf>

21. Noninvasive liquid level sensing with laser generated ultrasonic waves
Ultrasonics 18 January 2023 Volume 130 (Cover date: April 2023) Article 106926
Howuk Kim, Bharat Balagopal, Xiaoning Jiang
<https://www.sciencedirect.com/science/article/pii/S0041624X23000021/pdfft?md5=98299edac980272fd7143529946d9941&pid=1-s2.0-S0041624X23000021-main.pdf>

22. Direction of arrival estimation of an acoustic wave using a single structural vibration sensor
Journal of Sound and Vibration 13 March 2023 Volume 553 (Cover date: 9 June 2023) Article 117671
Tre DiPassio, Michael C. Heilemann, Mark F. Bocko
<https://www.sciencedirect.com/science/article/pii/S0022460X23001207/pdfft?md5=c2f1e4600f07456b66a9a3f582ec4977&pid=1-s2.0-S0022460X23001207-main.pdf>

23. Enhanced response speed of SAW based hydrogen sensor employing a micro-heater
International Journal of Hydrogen Energy Available online 4 February 2023 In press, corrected proof
Baile Cui, Jing Jin, Wen Wang
<https://www.sciencedirect.com/science/article/pii/S0360319923004482/pdfft?md5=ed88559311fe1a863a016a8d7d17dcf7&pid=1-s2.0-S0360319923004482-main.pdf>

24. An idler light power measurement temperature sensor based on the four-wave mixing in a highly nonlinear fiber
Photonics and Nanostructures - Fundamentals and Applications Available online 28 March 2023 In press, journal pre-proof Article 101133
Yuanhongliu Gao, Xiaoyu Chen, Xin Yan
<https://www.sciencedirect.com/science/article/pii/S1569441023000275/pdfft?md5=b1ea864163d63d0d524a54ee0d3029bc&pid=1-s2.0-S1569441023000275-main.pdf>

25. Fabrication of a novel sensor based on Cu quantum dot and SH-SiO2 nanoparticles supported on copper-based metal organic framework (Cu QD-SH-SiO2@Cu-MOF) and its application for the simultaneous determination of norepinephrine, piroxicam and epinephrine
Talanta 8 August 2022 Volume 252 (Cover date: 15 January 2023) Article 123776
Fatemeh Fallah, M. Reza Shishehbore, Ali Sheibani
<https://www.sciencedirect.com/science/article/pii/S0039914022005720/pdfft?md5=b6b10ce461d15faa1c22111bc255ce43&pid=1-s2.0-S0039914022005720-main.pdf>

26. Effective seismic force retrieval from surface measurement for SH-wave reconstruction
Soil Dynamics and Earthquake Engineering 8 December 2022 Volume 165 (Cover date: February 2023) Article 107682
Bruno Guidio, Heedong Goh, Chanseok Jeong
<https://www.sciencedirect.com/science/article/pii/S0267726122005279/pdfft?md5=966198fca92e4ea8d380a45da14ed2f9&pid=1-s2.0-S0267726122005279-main.pdf>

27. Drift-flux correlation based on coaxial line phase sensor in a horizontal slug flow
Experimental Thermal and Fluid Science 9 December 2022 Volume 142 (Cover date: 1 April 2023) Article 110828
Zhiyue Zhao, Xiaojie Wang, Ning Zhao
<https://www.sciencedirect.com/science/article/pii/S0894177722002242/pdfft?md5=09fb0027ff1616747c49d28e8bfc5a8d&pid=1-s2.0-S0894177722002242-main.pdf>

28. UHF sensors positioning on the power transformer tank to enhance the partial discharge localization accuracy
Electric Power Systems Research 3 February 2023 Volume 218 (Cover date: May 2023) Article 109174
Mohammad Amin Jangjoo, Mehdi Allahbakhshi, Hassan Reza Mirzaei
<https://www.sciencedirect.com/science/article/pii/S0378779623000639/pdfft?md5=ce30efa520a6c9cc3d9a516734515b6f&pid=1-s2.0-S0378779623000639-main.pdf>

29. On spot detection of nickel and cobalt from exhausted batteries by a smart electrochemical sensor
Talanta 7 September 2022 Volume 253 (Cover date: 1 February 2023) Article 123918
Giulia Selvolini, Giovanna Marrazza
<https://www.sciencedirect.com/science/article/pii/S0039914022007147/pdfft?md5=db75045fe61b701eab7df0db2f74e09c&pid=1-s2.0-S0039914022007147-main.pdf>

30. Mechanical intelligent wave energy harvesting and self-powered marine environment monitoring
Nano Energy 18 January 2023 Volume 108 (Cover date: April 2023) Article 108222
Lin-Chuan Zhao, Hong-Xiang Zou, Wen-Ming Zhang
<https://www.sciencedirect.com/science/article/pii/S2211285523000587/pdfft?md5=56bc93d337d2109c1101ab253efcf1d9&pid=1-s2.0-S2211285523000587-main.pdf>

31. Electrochemical sensor based on molecularly imprinted polymer cryogel and multiwalled carbon nanotubes for direct insulin detection
Talanta 26 November 2022 Volume 254 (Cover date: 1 March 2023) Article 124137
Nur Indah Wardani, Tawatchai Kangkamano, Warakorn Limbut
<https://www.sciencedirect.com/science/article/pii/S003991402200933X/pdfft?md5=e842a6f41ec09acf5b6dcfcc05ed0ff5&pid=1-s2.0-S003991402200933X-main.pdf>

32. Theoretical and experimental analysis of acoustic emission signal for resonant sensor on homogenous material
Sensing and Bio-Sensing Research 18 January 2023 Volume 39 (Cover date: February 2023) Article 100550
Tawhidul Islam Khan, Arif Abdullah Rashid, Tokumaru Nanami
<https://www.sciencedirect.com/science/article/pii/S2214180423000028/pdfft?md5=d51606d4e6db56babe1f0dcbb67cbc8a&pid=1-s2.0-S2214180423000028-main.pdf>

33. Design of an octagonal-shaped curved sensor antenna for dielectric characterization of liquids
Measurement 23 December 2022 Volume 207 (Cover date: 15 February 2023) Article 112389
Mustafa Berkan Bicer
<https://www.sciencedirect.com/science/article/pii/S0263224122015858/pdfft?md5=6755935e2b127e4e7f1d5534e09e789a&pid=1-s2.0-S0263224122015858-main.pdf>

34. AgNWs@SnO2/CuO nanocomposites for ultra-sensitive SO2 sensing based on surface acoustic wave with frequency-resistance dual-signal display
Sensors and Actuators B: Chemical8 November 2022Volume 375 (Cover date: 15 January 2023)Article 132966
Jie Yang, Tianran Wang, Xuezhong Wu
<https://www.sciencedirect.com/science/article/pii/S0925400522016094/pdfft?md5=f55775221e72cd1d5309bbfead4b8770&pid=1-s2.0-S0925400522016094-main.pdf>

35. New conductive ink based on carbon nanotubes and glass varnish for the construction of a disposable electrochemical sensor
Journal of Electroanalytical Chemistry Available online 5 April 2023 In press, journal pre-proof Article 117428
Jefferson H. S. Carvalho, Jéssica S. Stefano, Bruno C. Janegitz
<https://www.sciencedirect.com/science/article/pii/S1572665723002886/pdfft?md5=d6ed68150051f3e1cbc245a201604c28&pid=1-s2.0-S1572665723002886-main.pdf>

36. An experimental investigation on pulse transit time and pulse arrival time using ecg, pressure and ppg sensors
Medicine in Novel Technology and Devices 15 February 2023 Volume 17 (Cover date: March 2023) Article 100214
Sukesh Rao M.Narendra K. C, Sanith C. Bangera
<https://www.sciencedirect.com/science/article/pii/S1572665723002886/pdfft?md5=d6ed68150051f3e1cbc245a201604c28&pid=1-s2.0-S1572665723002886-main.pdf>

37. A comprehensive study of tunable properties of broadband terahertz absorber based on graphene-embedded random photonic crystals
Physica B: Condensed Matter 15 December 2022 Volume 650 (Cover date: 1 February 2023) Article 414581
Pulimi Mahesh, Damodar Panigrahy, Chittaranjan Nayak
<https://www.sciencedirect.com/science/article/pii/S0921452622008663/pdfft?md5=d0ed54d0ea2e54400c2b0b994d22ab99&pid=1-s2.0-S0921452622008663-main.pdf>

38. Multifunctional double-network Ti3C2Tx MXene composite hydrogels for strain sensors with effective electromagnetic interference and UV shielding properties
Polymer 17 March 2023 Volume 273 (Cover date: 24 April 2023) Article 125865
Kefan Fan, Kun Li, Jue Cheng
<https://www.sciencedirect.com/science/article/pii/S0032386123001957/pdfft?md5=752239530152018505255e0805d1953b&pid=1-s2.0-S0032386123001957-main.pdf>

39. Record-Breaking Frequency of 44 GHz Based on the Higher Order Mode of Surface Acoustic Waves with LiNbO3/SiO2/SiC Heterostructures
Engineering 23 May 2022 Volume 20 (Cover date: January 2023) Pages 112-119
Jian Zhou, Dinghong Zhang, Huigao Duan
<https://www.sciencedirect.com/science/article/pii/S2095809922003575/pdfft?md5=7d18c61c3040d3957defcd60d87fe7a0&pid=1-s2.0-S2095809922003575-main.pdf>

40. An embedded non-intrusive graphene/epoxy broadband nanocomposite sensor co-cured with GFRP for in situ structural health monitoring
Composites Science and Technology 16 March 2023 Volume 236 (Cover date: 3 May 2023) Article 109995
Qingqing Wang, Yuan Tian, Limin Zhou
<https://www.sciencedirect.com/science/article/pii/S026635382300088X/pdfft?md5=081c0454d30a74da5ca33aed95e6120d&pid=1-s2.0-S026635382300088X-main.pdf>

41. Acceleration sensitivity of piezoelectric pressure sensors and the influence on the measurement of explosion pressures
Journal of Loss Prevention in the Process Industries 31 January 2023 Volume 82 (Cover date: April 2023) Article 104999
Tim Krause, Harun Kanbur, Christian Heer
<https://www.sciencedirect.com/science/article/pii/S0950423023000293/pdfft?md5=2ef727667bdce8453f9a9435dc36f848&pid=1-s2.0-S0950423023000293-main.pdf>

42. Design of an S-shaped point-absorber wave energy converter with a non-linear PTO to power the satellite-respondent buoys in the East China Sea
Ocean Engineering 15 March 2023 Volume 275 (Cover date: 1 May 2023) Article 114162
Ammar Ahmed, Yanen Wang, Zutao Zhang
<https://www.sciencedirect.com/science/article/pii/S0029801823005462/pdfft?md5=67ebec2c3aa588c3232715ee1492d163&pid=1-s2.0-S0029801823005462-main.pdf>

43. Discriminating gas molecules at room temperature by UV light modulation (ULM) of nonselective metal oxide sensors
Sensors and Actuators B: Chemical 9 December 2022 Volume 378 (Cover date: 1 March 2023) Article 133115
Meng Li, Junqing Chang, Gang Meng
<https://www.sciencedirect.com/science/article/pii/S0925400522017580/pdfft?md5=2b285a4aca51ee20f50d4360b06040a8&pid=1-s2.0-S0925400522017580-main.pdf>

44. Study of a Shack-Hartmann wavefront sensor with adjustable spatial sampling based on spherical reference wave
Optics and Lasers in Engineering 20 September 2022 Volume 160 (Cover date: January 2023) Article 107289
Xiaosong Wu, Linhai Huang, Wenju Wei
<https://www.sciencedirect.com/science/article/pii/S0143816622003426/pdfft?md5=288e14a73476848ee55a29a6c3393c13&pid=1-s2.0-S0143816622003426-main.pdf>

45. Simultaneous square wave voltammetry detection of azo dyes using silver nanoparticles assembled on carbon nanofibers
Electrochimica Acta 27 December 2022 Volume 441 (Cover date: 10 February 2023) Article 141782
Yeshy F. Ascencio-Flores, Saira M. Carhuayal-Alvarez, Angélica M. Baena-Moncada
<https://www.sciencedirect.com/science/article/pii/S0013468622019387/pdfft?md5=5c4d8ec4217d848258c9feb48b18fc31&pid=1-s2.0-S0013468622019387-main.pdf>

46. Mid-infrared silver halide fibre-optic sensor with lateral notches for evanescent wave spectroscopy
Infrared Physics & Technology 29 December 2022 Volume 128 (Cover date: January 2023) Article 104529
Elena Korsakova, Anastasia Yuzhakova, Alexandr Korsakov
<https://www.sciencedirect.com/science/article/pii/S1350449522005102/pdfft?md5=15c62a90928debaafa276cf98dec2a70&pid=1-s2.0-S1350449522005102-main.pdf>

47. Optimization of square wave voltammetry parameters by response surface methodology for the determination of Sunset yellow using an electrochemical sensor based on Purpald®
Food Chemistry 27 September 2022 Volume 404, Part A (Cover date: 15 March 2023) Article 134412
Tuğba Tabanlıgil Calam, Gülşen Taşkın Çakıcı
<https://www.sciencedirect.com/science/article/pii/S0308814622023743/pdfft?md5=7225caa79d05a92c949cfd692cb87f32&pid=1-s2.0-S0308814622023743-main.pdf>

48. A simple, ultrasensitive and cost-effective electrochemical sensor for the determination of ciprofloxacin in various types of samples
Sensing and Bio-Sensing Research 10 December 2022 Volume 39 (Cover date: February 2023) Article 100547
Wondimeneh Dubale Adane, Bhagwan Singh Chandravanshi, Merid Tessema
<https://www.sciencedirect.com/science/article/pii/S2214180422000769/pdfft?md5=ccf70ce8a2c9bbd55d1ab1f7f7919b36&pid=1-s2.0-S2214180422000769-main.pdf>

49. Light-activated SAW sensor structures with photoconductive polymer films for DMMP detection
Sensors and Actuators B: Chemical 2 March 2023 Volume 384 (Cover date: 1 June 2023) Article 133597
Wiesław Jakubik, Jarosław Wrotniak, Paulina Powroźnik
<https://www.sciencedirect.com/science/article/pii/S092540052300312X/pdfft?md5=76a0ba8fcd411170fab52c30d8613384&pid=1-s2.0-S092540052300312X-main.pdf>

50. Geolocalization of water-waves origin within water distribution networks using time reversal of first event detection
Water Research 29 December 2022 Volume 230 (Cover date: 15 February 2023) Article 119538
R. Guibert, A. Bayle, F. Plouraboué
<https://www.sciencedirect.com/science/article/pii/S004313542201483X/pdfft?md5=573547f0aefbfeb280257bdf116ce50b&pid=1-s2.0-S004313542201483X-main.pdf>

51. An ensemble learning approach to condition assessment of dissipative CLT connections based on piezoceramic sensor data
Engineering Applications of Artificial Intelligence 21 October 2022 Volume 117, Part A (Cover date: January 2023) Article 105514
Lin Chen, Haibei Xiong, Qingzhao Kong
<https://www.sciencedirect.com/science/article/pii/S0952197622005048/pdfft?md5=80907d66d1931adf0eb24fc6ae5b5574&pid=1-s2.0-S0952197622005048-main.pdf>

    Nguồn: Cục Thông tin khoa học và công nghệ quốc gia