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Specialty: Electronics, Geophysics Instrumentation, Seismology.

### [Education]

- B. S ., 1997 , Electronic Engineering, National Taiwan University of Science and Technology
- M. S., 2000, Institute of Geophysics, National Central University
- Ph.D., 2009, Institute of Geophysics, National Central University

### [Experiences]

- 1985/7~1993/12: Electronic Technician, IES-Academia Sinica
- 1994/1~ 2010/12: Electronic Engineer
- 2005/4 ~ 2005/12: Woods Hole Oceanographic Institution Geology & Geophysics Department Guest Investigator
- 2010/12 ~2015/08: Assistant Research Scientist
- 2015/08 ~ present: Associate Research Scientist

### [Patents]

#### **(1). Leveling System for Compact Seismic Sensors**

Patent number: TW Issued No: I 414807

Date of grant: 2013-11-11, Scheduled expiry date: 2031-02-23

Inventor: Chau-Chang Wang, Po-Chi Chen, Jia-Pu Jang, Jung-Li Tien, Ban-Yuan Kao, **Ching-Ren Lin**.

Fields of Application: Earthquake monitoring, underwater fault investigation, underwater resources (petroleum, gas, methane hydrates among others) exploration, tsunami monitoring.

Reference web site: [http://otl.sinica.edu.tw/index.php?t=9&group\\_id=89&article\\_id=1185](http://otl.sinica.edu.tw/index.php?t=9&group_id=89&article_id=1185)

## **(2). Beacon system capable of positioning coordinate**

Patent number: TW Issued No: M 462924

Date of grant: 2013-10-01, Scheduled expiry date: 2013-05-20

Inventor: **Ching-Ren Lin**, Hsu-Kuang Chang, Jia-Pu Jang.

Abstract : A kind of beacon that integrated Radio, GPS and Flash function become a new type “Flash beacon with wireless GPS”. It is mounted on the underwater device normally. The beacon will be turn on when it floating up surface within 10 meter then sent out GPS position via radio signal and high illumination LED will also turn on at dark environment. Operator can receive beacon’s position by decoded radio signal and see a flashlight at dark environment that generated from the beacon. It could be deploy more than 6000 meters water depth.

Fields of Application:

- (i) Water surface position indicator for cable free underwater device.
- (ii) Water device position indication.
- (iii) Longline fishing buoy location guide.

- (iv) Flow field analysis of ocean currents.
- (v) Velocity analysis of river water flow.

Reference web site: [http://otl.sinica.edu.tw/index.php?t=9&group\\_id=89&article\\_id=1337](http://otl.sinica.edu.tw/index.php?t=9&group_id=89&article_id=1337)

### **(3). Switch device**

Patent Status : TW Issued No: M 487518

Date of grant: 2014-10-01, Scheduled expiry date: 2014-03-12

Inventor: **Ching-Ren Lin**, Jia-Pu Jang.

Abstract : A kind of under water power switch which action by water pressure. This device could be installation on under water instruments for controlling electric power ON and OFF when that instruments floatation near surface 10 – 30 m. The maximum deployment range is 10,000 meters deep in the water.

Fields of Application:

- (i) Underwater device position indicator power control.
- (ii) Underwater device deep end power control.

Reference web site: [http://otl.sinica.edu.tw/index.php?t=9&group\\_id=89&article\\_id=1399](http://otl.sinica.edu.tw/index.php?t=9&group_id=89&article_id=1399)

### **[Publications]**

#### **(Journal Papers)**

1. Ching-Jer Huang\*, Hsin-Yu Chen, Chung-Ray Chu\*, **Ching-Ren Lin**, Li-Chen Yen, Hsiao-Yuen Yin, Chau-Chang Wang and Ban-Yuan Kuo. (2022, Nov). LowFrequency

Ground Vibrations Generated by Debris Flows Detected by a LabFabricated Seismometer. *Sensors*, 2022, 22, 9310

2. Sze Ling Ho, Jia-Kang Wang, Yu-Jou Lin, **Ching-Ren Lin**, Chen-Wei Lee, Chia-Hsin Hsu, Lo-Yu Chang, To-Hsiang Wu, Chien-Chia Tseng, Hsiao-Jou Wu, Cédric M. John, Tatsuo Oji, Tsung-Kwei Liu, Wen-Shan Chen, Peter Li, Jiann-Neng Fang, Jih-Pai Lin\*, 2022, “Changing surface ocean circulation caused the local demise of echinoid *Scaphechinus mirabilis* in Taiwan during the Pleistocene – Holocene transition.” , *SCIENTIFIC REPORTS*, 12, 8204, 1-9. (SCIE) (IF: 3.998; SCI ranking: 23.9%)
3. Chu-Fang Yang\*, Wu-Cheng Chi, Hans van Haren, **Ching-Ren Lin**, Ban-Yuan Kuo, 2021, “Tracking deep-sea internal wave propagation with a differential pressure gauge array.” , *SCIENTIFIC REPORTS*, 11, 23311 (2021), <https://doi.org/10.1>. (SCIE) (IF: 3.998; SCI ranking: 23.9%)
4. Chieh-Hung Chen\*, Yang-Yi Sun, Li-Ching Lin, Peng Han, Huai-Zhong Yu, XueMin Zhang, Chi-Chia Tang, Chun-Rong Chen, Horng-Yuan Yen, Cheng-Horng Lin, Jann-Yenq Liu & **Ching-Ren Lin**, 2021, “Large air pressure changes triggered by P-SV ground motion in a cave in northern Taiwan” , *SCIENTIFIC REPORTS*, 11, 12850 (2021), 11. (SCIE) (IF: 3.998; SCI ranking: 23.9%)
5. **Ching-Ren Lin**, Chih-Wen Chiang\*, Kuei-Yi Huang, Yu-Hung Hsiao, Po-Chi Chen, Hsu-Kuang Chang, Jia-Pu Jang, Kun-Hui Chang, Feng-Sheng Lin, Saulwood Lin, and Ban-Yuan Kuo, 2019, “Evaluations of an ocean bottom electro-magnetometer and preliminary results offshore NE Taiwan” , *Geoscientific Instrumentation, Methods and Data Systems (GI)*, 8(2), 265-276.
6. Kuo, B. Y, W. C. Crawford, S. C. Webb, **C. R. Lin**, T. C. Yu, and L. Chen, 2015, “Faulting and hydration of the upper crust of the SW Okinawa Trough during continental rifting: Evidence from seafloor compliance inversion” , *GEOPHYSICAL RESEARCH LETTERS*, 42, 4809-4815. (SCI)

7. Ban-Yuan Kuo, Spahr C. Webb, **Ching-Ren Lin**, Wen-Tzong Liang, and Nai-Chi Hsiao(2014), Removing Infragravity-Wave-Induced Noise from Ocean-Bottom Seismographs (OBS) Data Deployed Offshore of Taiwan. Bulletin of the Seismological Society of America, August 2014, v. 104, p. 1674-1684. (SCI)
8. Chau-Chang Wang, Po-Chi Chen and **Ching-Ren Lin**, (2012), Development of a Geophone-Based Actively-Leveled Ocean Bottom Seismometer, IEEE OCEANS, 2012 - Yeosu P 1 - 7. (SCI)
9. Ban-Yuan Kuo, Chau-Chang Wang, Shu-Chuan Lin, **Ching-Ren Lin**, Po-Chi Chen, Jia-Pu Jang, Hsu-Kuang Chang. 2012. Shear-wave splitting at the edge of the Ryukyu subduction zone, Earth and Planetary Science Letters, 355 - 356 (2012) 262 - 270.(SCI)
10. Chieh-Hung Chen, Jann-Yenq Liu, Tao-Ming Chang, Ta-Kang Yeh, Chung-Ho Wang, Strong Wen, Horng-Yuan Yen, Katsumi Hattori, **Ching-Ren Lin**, Yi-Ru Chen, (2012). Azimuthal propagation of seismo-magnetic signals from large earthquakes in Taiwan, ANNALS OF GEOPHYSICS, 55, 1; doi: 10.4401/ag-5326.(SCI)
11. Chen, C.H., Wen, S., Liu, J.Y., Yeh, T.K., Wang, C.H., Yen, H.Y., Hattori, K., **Lin, C.R.**, 2011. Seismomagnetic Signal Comparison using the Morlet Wavelet Method, Disaster Adv. 4(4), 53-60.(SCI)
12. Wu-Cheng Chi, Wan-Jou Chen, David Dolenc, Ban-Yuen Kuo, **Chingren Lin**, and John Collins (2010). Seismological Report on the 2006 Typhoon Shanshan that Lit up Seismic Stations along Its Way. Seismological Research Letters Volume 81, Number 4, 592-596.
13. **Ching-Ren Lin**, Ban-Yuan Kuo, Wen-Tzong Liang, Wu-Cheng Chi, You-Chih Huang, John Collins, and Chien-Ying Wang.(2010) Ambient Noise and Teleseismic Signals Recorded by Ocean-Bottom Seismometers Offshore Eastern Taiwan. *Terr. Atmos. Ocea Sci.* Vol. 21, No. 5, 743-755, 2010. (SCI)

14. Ban-Yuan Kuo, Wu-Cheng Chi, **Ching-Ren Lin**, Emmy Tsui-Yu Chang, John Collins<sup>4</sup> and Char-Shine Liu (2009), Two-station measurement of Rayleigh-wave phase velocities for the Huatung basin, the westernmost Philippine Sea, with OBS: implications for regional tectonics. *Geophys. J. Int.* 179, 1859–1869. (SCI)
15. Chieh-Hung Chen, **Ching-Ren Lin**, Hsiao-Ling Chao, Horng-Yuan Yen, Jann-Yeng Liu, and Yih-Hsiung Yeh (2009), Evaluation of the Applicability of Chapman-Miller Method on Variation of the Geomagnetic Total Intensity Field in Taiwan from 1988 to 2007. *Terr. Atmos. Ocean. Sci.*, Vol. 20, No. 6, 799-806, December (SCI)
16. Chen, C.H., Liu, J.Y., Yang, W.H., Yen, H.Y., Hattori, K., **Lin, C.R.**, Yeh, Y.H., (2009), SMART analysis of geomagnetic data observed in Taiwan. *Phy. Chem. Earth.* 34, 350-359, doi:10.1016/j.pce.2008.09.002 (SCI)
17. Horng-Yuan Yen, Chieh-Hung Chen, Hsien-Hsiang Hsieh<sup>1</sup>, **Ching-Ren Lin**, Yih-Hsiung Yeh, Yi-Ben Tsai<sup>1</sup>, Jann-Yeng Liu, Guey-Kuen Yu, and Yi-Ru Chen, (2009) Magnetic Survey of Taiwan and Its Preliminary. Interpretations, *Terr. Atmos. Ocean. Sci.*, Vol. 20, No. 2, 309-314, April (SCI)
18. Chen, C. H., J. Y. Liu, W. H. Yang, H. Y. Yen, K. Hattori, **C. R. Lin**, and Y. H. Yeh, (2009): SMART analysis of geomagnetic data observed in Taiwan. *Phy. Chem. Earth*, 34, 350-359, doi: 10.1016/j.pce.2008.09.002.
19. Chow-Son Chen, Wei-Hsuan Chiu, and **Ching-Ren Lin**.(2009), Metal Detection by Multi-Component TEM Method. *Terr. Atmos. Ocean. Sci.*, Vol. 20, No. 3, 445-454, June(SCI)
20. Chow-Son Chen, Wei-Hsuan Chiu, and **Ching-Ren Lin**, (2008), Three Component Time-domain Electromagnetic Surveying: Modeling and Data Analysis. *PIERS Online* Vol. 4 No. 4 pp: 475-480