星狀圖的漢米爾頓可蕾絲相鄰點容錯之研究

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摘要

在連結網路中Star graph是一個耳熟能詳的拓樸網路架構。此論文中探討星狀圖的一些漢米爾頓特性之邊容錯和相鄰點容錯。 先令Sn 為一個n 維的星狀圖,再令Fe是Sn上壞邊的集合和Fav 是Sn 上壞相鄰對點的集合。在這篇論文中,我們要建構一個當b 和w 為任意兩個奇數長度的點並且 fav + fe?3 及n?5,在Sn - Fav - Fe 時還存在一條漢米爾頓路徑 P(b, w) 的星狀圖。

關鍵詞:星狀圖、相鄰點容錯、邊容錯

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參考文獻

- [1] S.B. Akers, B. Krishnamurthy, "A group-theoretic model for symmetric interconnection networks," IEEE Transaction on Computers, 38, pp. 555-566, 1989.
- [2] N. Bagherzadeh, M. Dowd, N. Nassif, "Embedding an arbitrary binary tree into the star graph," IEEE Trans. Comput., pp. 475-481, 1996.
- [3] J.H. Chang, C.S. Shin, K.Y. Chwa, "Ring embedding in faulty star graphs," IEICE Trans. Fund. E82-A. pp. 1953-1964, 1999.
- [4] C. Dongqin, G. Dachang, "Cycle embedding in star graphs with more conditional faulty edges," Applied Mathematics and Computation, 218, pp. 3856-3867, 2011.
- [5] T. Dvo r ak, "Hamiltonian cycles with prescribed edges in hypercubes," SIAM J. Discrete Math. 19 (2005) 135-144.
- [6] T. Dvo r ak, P. Gregor, "Hamiltonian paths with prescribed edges in hypercubes," Discrete Mathematics 307 (2007) 1982-1998.
- [7] J.S. Fu, "Conditional fault-tolerant hamiltonicity of star graphs," Parallel Computing, 33, pp. 488-496, 2007.
- [8] S.Y. Hsieh, G.H. Chen, C.W. Ho, "Longest fault-free paths in star graphs with vertex faults," Theoret. Comput. pp. 215-227, 2001.
- [9] S.Y. Hsieh, G.H. Chen, C.W. Ho, "Longest fault-free paths in star graphs with edge faults," IEEE Trans. Comput. pp. 960-971, 2001.
- [10] S.Y. Hsieh, "Embedding longest fault-free paths onto star graphs with more vertex faults," Theoret. Comput. pp. 370-378, 2005.
- [11] S.Y. Hsieh, C.D. Wu, "Optimal fault-tolerant Hamiltonicity of star graphs with conditional edge faults," Journal of Supercomputing, 49, pp. 354-372, 2009.
- [12] C.N. Hung, Y.H. Chang, C.M. Sun, "Longest paths and cycles in fault hypercubes," Proceedings of the IASTED International Conference on Parallel and Distributed Computing and Networks, pp. 101-110, 2006.
- [13] C.W. Huang, H.L. Huang, S.Y. Hsieh, "Edge-bipancyclicity of star graphs with faulty elements," Theoretical Computer Science, 412, pp. 6938-6947, 2011.
- [14] J.S. Jwo, S. Lakshmivarahan, S.K. Dhall, "Embedding of cycles and grids in star graphs," J. Circuits, Systems, and Comput. pp. 43-74, 1991.
- [15] S. Latifi, N. Bagherzadeh, "Hamiltonicity of the clustered-star graph with embedding applications," Proc. Internat. Conf. Parallel Distributed Process. Tech. pp. 734-744, 1996.
- [16] T.K. Li, Jimmy J.M. Tan, L.H. Hsu, "Hyper hamiltonian laceability on edge fault star graph," Information Sciences, Vol. 165, pp. 59-71, 2004.
- [17] T.K. Li, "Cycle embedding in star graphs with edge faults," Applied Mathematics and Computation, 167, pp. 891-900, 2005.
- [18] C.K. Lin, H.M. Huang, L.H. Hsu, "The super connectivity of the pancake graphs and the super laceability of the star graphs," Theoretical Computer Science, 339, pp. 257-271, 2005.
- [19] S. Latifi, "A study of fault tolerance in star graph," Information Processing Letters, 102, pp. 192-200, 2007.
- [20] Z. Miller, D. Pritikin, I.H. Sudborough, "Near embeddings of hypercubes into Cayley graphs on the symmetric group," IEEE Transaction on Computers, 43, pp. 13-22, 1994.
- [21] J.H. Park, H.C. Kim, "Longest paths and cycles in faulty star graphs," Journal of Parallel and Distributed Computing, 64, pp. 1286-1296,

2004.

- [22] S. Ranka, J.C.Wang, N. Yeh, "Embedding meshes on the star graph," J. Parallel Distributed Comput. pp. 131-135, 1993.
- [23] W.Y. Su, C.N. Hung, "The Longest Ring Embedding in Faulty Hypercube," Workshop on Combinatorial Mathematics and Computational Theory, 23,pp. 262-272, 2006.
- [24] Y.C. Tseng, S.H. Chang, J.P. Sheu, "Fault-tolerant ring embedding in star graphs with both link and node failures," IEEE Trans. Parallel Distributed Systems. pp. 1185-1195, 1997.
- [25] Y.C. Tseng, "Embedding a ring in a hypercube with both faulty links and faulty nodes," Information Processing Letters, 59, pp. 217-222, 1996.
- [26] D.J. Wang, "Embedding Hamiltonian cycles into folded hypercubes with link faults," Journal of Parallel and Distributed Computing, 61, pp. 545-564, 2001.
- [27] W.Q. Wang, X.B. Chen, "A fault-free Hamiltonian cycle passing through prescribed edges in a hypercube with faulty edges," Information Processing Letters, 107, pp. 205-210, 2008.
- [28] M.Xu, X.D. Hu, Q. Zhu, "Edge-bipancyclicity of star graphs under edge-fault tolerant," Applied Mathematics and Computation, 183, pp. 972-979, 2006.
- [29] C.Y. Yang, C.N. Hung, "Adjacent Vertices Fault Tolerance Hamiltonian Laceability of Star Graphs" The Proceedings of the 23rd Workshop on Combinatorial Mathematics and Computation Theory, pp. 279-289, 2006.
- [30] M.C. Yang, T.K. Li, Jimmy J.M. Tan, L.H. Hsu, "Fault tolerant cycle-embedding of crossed cubes," Information Processing Letters, 88, pp. 149-154, 2003.
- [31] M.C. Yang, "Cycle embedding in star graphs with conditional edge faults," Applied Mathematics and Computation, 215, pp. 3541-3546, 2009.
- [32] M.C. Yang, "Embedding cycles of various lengths into star graphs with both edge and vertex faults," Applied Mathematics and Computation, 216, pp. 3754-3760, 2010.
- [33] M.C. Yang, "Path embedding in star graphs," Applied Mathematics and Computation, 207, pp. 283-291, 2009.
- [34] T.Y. Yu, C.N. Hung, "The Hamiltonian path passing through prescribed edges in a star graph with faulty edges," Proceedings of the 28th Workshop on Combinatorial Mathematics and Computation Theory, pp. 112-123, 2011.