

# Rank-deficiency in indoor MIMO

Vu V.K., Nguyen D.T.

College of Technology, Vietnam National University, Hanoi, Viet Nam; Faculty of Engineering, University of Technology, Sydney, NSW, Australia

**Abstract:** This paper points out in an analytical way that rank-deficiency in indoor MIMO is typically due to the small size of scattering windows in the NLOS propagation path between the transmitter and the receiver.  
©2007 IEEE.

**Index Keywords:** Multiplexing; NLOS propagation; Small size; MIM devices

**Year:** 2007

**Source title:** IEEE Region 10 Annual International Conference, Proceedings/TENCON

**Art. No.:** 4428974

**Link:** Scopus Link

**Correspondence Address:** Vu, V. K.; College of Technology, Vietnam National University, Hanoi, Viet Nam

**Conference name:** IEEE Region 10 Conference, TENCON 2007

**Conference date:** 30 October 2007 through 2 November 2007

**Conference location:** Taipei

**Conference code:** 72927

**ISBN:** 1424412722; 9781424412723

**CODEN:** 85QXA

**DOI:** 10.1109/TENCON.2007.4428974

**Language of Original Document:** English

**Abbreviated Source Title:** IEEE Region 10 Annual International Conference, Proceedings/TENCON

**Document Type:** Conference Paper

**Source:** Scopus

**Authors with affiliations:**

- Vu, V.K., College of Technology, Vietnam National University, Hanoi, Viet Nam
- Nguyen, D.T., Faculty of Engineering, University of Technology, Sydney, NSW, Australia

**References:**

- Telatar, E., Capacity of Multi-antenna Gaussian Channels (1999) Eur. Trans. Telecommun, 10 (6), pp. 585-596. , Nov./Dec
- Foschini, G.J., Gans, M.J., On limits of wireless communications in a fading environment when using multiple antennas (1998) Wireless Pers. Commun, 6, pp. 311-335. , Mar
- Chizikh, D., Foschini, G.J., Gans, M.J., Valenzuela, R.A., Keyholes, correlations, and capacities of multielement transmit and receive antennas (2002) IEEE Trans. Wireless Commun, 1, pp. 361-368. , Apr
- Almers, P., Tufvesson, F., Molisch, A.F., Measurement of Keyhole Effect in a Wireless Multiple-Input Multiple-Output (MIMO) Channel (2003) IEEE Communication Letters, 7 (8), pp. 373-375. , August
- Gesbert, D., Bolcskei, H., Gore, D.A., Paulraj, A.J., Outdoor MIMO Wireless Channels: Models and Performance Prediction

- (2002) IEEE Transactions on Communications, 50 (12), pp. 1926-1934. , Dec
- Jakes, W.C., (1974) Microwave Mobile Communications, pp. 60-65. , Wiley, New York
  - Da-Shan Shiu, G., Foschini, J., Gans, M.J., Kahn, J.M., Fading Correlation and its Effect on the Capacity of Multielement Antenna Systems (2000) IEEE Trans. Commun, 48 (3), pp. 502-513. , Mar