1037-05-294 **Xujin Chen*** (xchen@amss.ac.cn), **Gouli Ding** and **Wenan Zang**. *An Excluded Minor Characterization of Box-Mengerian Matroid Ports.*

Let M be a matroid on $E \cup \{\ell\}$, where $\ell \notin E$ is a distinguished element of M. The *ℓ-port* of M is the set $\mathcal{P} = \{P : P \subseteq E$ with $P \cup \{\ell\}$ a circuit of $M\}$. Let A be the $\mathcal{P}$-E incidence matrix. Let $U_{2,4}$ be the uniform matroid on four elements of rank two, F_7 be the Fano matroid, F_7^* be the dual of F_7, and F_7^+ be the unique series extension of F_7. We show that the system $A\mathbf{x} \geq \mathbf{1}$, $\mathbf{x} \geq \mathbf{0}$ is *box-totally dual integral* (box-TDI) if and only if M has no $U_{2,4}$-minor using ℓ, no F_7^*-minor using ℓ, and no F_7^+-minor using ℓ as a series element. Several applications of our result is also presented. (Received February 04, 2008)