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**Minakshisundaram** ——— **Rajagopalan\*** (mrajagopalan@juno.com), 515 Basswood Drive ; #  
apt L-120, Nashville, TN 37209. *Shifts on product spaces  $E \times F$* . Preliminary report.

A shift operator on a Banach space  $E$  is a linear isometry  $T$  from  $E$  into  $E$  whose range is of codimension 1 and with  $O$  being the only element in the intersection of the ranges of all integral powers of  $T$ . If  $E, F$  are Banach spaces then the product space  $E \times F$  is their product with sup norm.

It is known that if  $E$  is a Banach space with a shift then  $E \times E$  also has a shift. The natural question is what happens if  $E$  is not isometric with  $F$  ? It was generally conjectured that in that case there will be no shift on  $E \times F$ .

Here we give an example of spaces  $E, F$  ( not isometric) with shifts and so that  $E \times F$  has a shift. (Received August 25, 2008)