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## **COORDINATING SUPPLY CHAINS TO REDUCE CARBON EMISSIONS THAT OF A RETAILER AND A SUPPLIER**

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### **Abstract**

Recently, the low carbon economy concept has attracted the interest of governments and enterprises. To achieve low-carbon economy, enterprises must invest in upgrading existing facilities, processes and products so as to reduce carbon emissions. Generally, the benefits of carbon emissions reduction of firms in a supply chain are significant, so the firms should share the investments. Based on this idea, we studied how to coordinate the supply chain to reduce carbon emissions. Specifically, we considered a manufacturer and a retailer which planned to invest in transforming the existing production processes so as to reduce carbon emissions. We analyzed how the investments for low-carbon transition and the allocation of corresponding profit can affect the behavior of the supply chain members. Optimal investment strategies both under the centralized and decentralized system are analyzed. We have applied Nash Bargaining Game to design coordination mechanisms of supply chain systems.

*Key words:* Cooperative Supply Chain, low-carbon, Nash Bargaining Game, Non-Cooperative Supply Chain, supply chain coordination

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