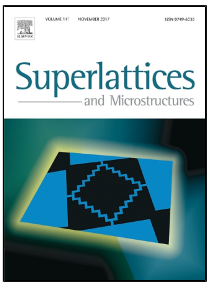
Accepted Manuscript



Monte Carlo simulation of magnetic properties of a ferrimagnetic nanoisland with hexagonal prismatic core-shell structure

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PII:	S0749-6036(17)32552-1
DOI:	10.1016/j.spmi.2017.10.041
Reference:	YSPMI 5335
To appear in:	*Superlattices and Microstructures*
Received Date:	24 October 2017
Revised Date:	31 October 2017
Accepted Date:	31 October 2017

Please cite this article as: Wei Wang, Zhou Peng, Shan-shan Lin, Qi Li, Dan Lv, Sen Yang, Monte Carlo simulation of magnetic properties of a ferrimagnetic nanoisland with hexagonal prismatic core-shell structure, *Superlattices and Microstructures* (2017), doi: 10.1016/j.spmi.2017.10.041

Highlights

- A hexagonal prismatic core-shell ferrimagnetic nanoisland with spin-2 and spin-5/2 has been proposed.
- Effects of the single-ion anisotropies, the exchange couplings and temperature on magnetic properties have been investigated.
- Magnetization, susceptibility and internal energy have been discussed.
- The phase diagrams in different parameter planes were obtained.
- Multiple hysteresis loops behaviors such as double, triple and quadruple hysteresis loops have been discovered.