

## Characterizing linear Weingarten submanifolds in a Riemannian space form via $L$ -parabolicity

By RAILANE ANTONIA (Paraíba), HENRIQUE F. DE LIMA (Paraíba)  
and MÁRCIO S. SANTOS (Paraíba)

**Abstract.** We obtain a parabolicity criterion related to a modified Cheng–Yau’s operator, and we apply it to prove that a complete linear Weingarten submanifold, immersed with parallel normalized mean curvature vector in a Riemannian space form  $\mathbb{Q}_c^{n+p}$  of constant sectional curvature  $c \in \{-1, 0, 1\}$  must be either totally umbilical or isometric to a hyperbolic cylinder, when  $c = -1$ , a circular cylinder, when  $c = 0$ , and a Clifford torus, when  $c = 1$ .

RAILANE ANTONIA &  
MÁRCIO S. SANTOS  
DEPARTAMENTO DE MATEMÁTICA  
UNIVERSIDADE FEDERAL DA PARAÍBA  
58.051-900 JOÃO PESSOA, PARAÍBA  
BRAZIL

HENRIQUE F. DE LIMA  
DEPARTAMENTO DE MATEMÁTICA  
UNIVERSIDADE FEDERAL DE CAMPINA GRANDE  
58.429-970 CAMPINA GRANDE, PARAÍBA  
BRAZIL

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*Mathematics Subject Classification:* 53C24, 53C40, 53C42.

*Key words and phrases:* Riemannian space forms, complete linear Weingarten submanifolds, parallel normalized mean curvature vector, parabolicity criterion, Clifford torus, circular and hyperbolic cylinders.