

Supplementary Materials

Table SI: General classification of 55 magnetic TMX₂ monolayers with relation to different U values (from 0 to 5).

Magnetic cases (55)					
U-independent (23)			U-dependent (32)		
FM (4)	AFM (19)		Regular (11)	Irregular (21)	
	Collinear (11)	Noncollinear (8)			
NiCl ₂	CrCl ₂	VCl ₂	FeCl ₂	ScCl ₂	TiCl ₂
AgCl ₂	TiBr ₂	MnCl ₂	CoCl ₂	MoCl ₂	RuCl ₂
AgBr ₂	CrBr ₂	PtCl ₂	CuCl ₂	RhCl ₂	ScBr ₂
AuI ₂	CoBr ₂	VBr ₂	TcCl ₂	FeBr ₂	NbBr ₂
	NiBr ₂	MnBr ₂	PdCl ₂	MoBr ₂	TcBr ₂
	PtBr ₂	VI ₂	IrCl ₂	RuBr ₂	RhBr ₂
	ScI ₂	MnI ₂	AuCl ₂	IrBr ₂	CrI ₂
	TiI ₂	CoI ₂	CuBr ₂	NbI ₂	MoI ₂
	FeI ₂		PdBr ₂	TcI ₂	TaI ₂
	NiI ₂		AuBr ₂	WI ₂	IrI ₂
	PdI ₂		RhI ₂	PtI ₂	