1992a The points on a Shimura variety modulo a prime of good reduction,

(The Zeta Function of Picard Modular Surfaces, Montreal, 1992, pp. 151–253.)

Erratum

p164. In Theorem 1.8, the displayed formula should be:

$$\tau[x,a] = [x, r(\tau)\cdot a].$$

Since τ commutes with the action of $G(\mathbb{A}_f)$, this is equivalent to

$$\tau[x,1] = [x, r(\tau)].$$

Section 2. An old (c. 1984) example of Raynaud shows that Corollary 6.8 of Faltings and Chai 1990, which is used in the proof of Proposition 2.12, is false[1]. This is noted in the footnote to 4.27 of my second Seattle article (1994). This requires a change in the class of schemes Y in Definition 2.5 used to test the extension property.

Ben Moonen (Models of Shimura varieties in mixed characteristic, in Galois Representations in Arithmetic Algebraic Geometry, Cambridge UP, 1998, pp. 267–350) suggests taking the smallest natural class, and Adrian Vasiu (Integral canonical models of Shimura varieties of preabelian type, Asian J. Math., 3 (1999), 401–520) suggests taking the largest natural class.

Raynaud's counterexample is explained briefly in Moonen's article, and in detail in

> de Jong, A.J., and[2] Oort, F., On extending families of curves, J. Algebraic Geometry 6 (1997), 545–562.

p176. Conjecture 3.5 is misstated: it should say that an algebraic cycle that is numerically equivalent to zero maps to zero in the étale and crystalline cohomologies.

p181. Sometimes $\mathbb{Q}_p^{\mathrm{al}}$ needs to be replaced by its completion (because it doesn't contain B).

p182. In Definition 3.27, one needs to add a compatibility condition on the ζ_ℓ's in order to be able to take the restricted product of the $X_\ell(\varphi)$'s on p187.

p182. The proof of Theorem 3.28, hinted at in the text and given in more detail in my first article in the Seattle conference p448, only shows that, if $(\mathfrak{P}', (\zeta'_\ell))$ is a second pseudomotivic groupoid, then there is an isomorphism $\alpha : \mathfrak{P} \to \mathfrak{P}'$ such that, for all ℓ and all algebraic quotients $\pi : \mathfrak{G}_\ell \to \mathfrak{G}'_\ell$ of $\mathfrak{G}_\ell$, $\pi \circ \zeta'_\ell \approx \pi \circ \alpha \circ \zeta_\ell$. Cf. the comment on p227 below.

[[In fact, none of this matters, because I now have a natural definition of the pseudomotivic groupoid.]]

p188. The proof of Lemma 4.1 in fact shows that an isomorphism $c\colon \varphi \to \varphi'$ induces an isomorphism $(S(\varphi), \Phi(\varphi), \times(\varphi)) \to (S(\varphi'), \Phi(\varphi'), \times(\varphi'))$ that is independent of the choice of c.

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[1] Apparently, this was known to Faltings long before the book was published.

[2] These authors seem unaware that others had noticed that Raynaud's counterexample to Faltings's result necessitates a change in the definition of canonical integral model. Perhaps this is not surprising since, judging from their list of references, they were also unaware of which paper of mine contains the definition.

p192. In the statement of Theorem 4.6, there is a sign error in (a), the maps in (b) and (c) are composed in the incorrect order, and in (d) φ^{ab} should only be required to be isomorphic to the canonical homomorphism attached to μ^{ab}.

p195, 8t. Delete of.

p216. A groupoid in sets is a ***small*** category....

pp216, 218. It has been suggested to me that "groupoid in sets" and "groupoid in schemes", which are direct translations of the French, read badly in English, and that "groupoid" and "groupoid scheme" would be better.

p220, 6b. Should be ...(see [Deligne and Milne 1982,....

p224, B.12. Need to require M to be abelian, otherwise $M \to 1$ is not a crossed module (see B.7(a)).

p226, 15t. Should be ... fibred category $\mathcal{G}^0(S : \mathfrak{G}) \to \mathsf{Aff}_{S_0}$ (not S).

p227. Let φ and ψ be morphisms of groupoids $\mathfrak{P} \to \mathfrak{G}$. It may happen that $\pi \circ \varphi$ is isomorphic to $\pi \circ \psi$ for every algebraic quotient $\pi : \mathfrak{G} \to \mathfrak{G}'$ of $\mathfrak{G}$ without φ being isomorphic to ψ. For a discussion of such things, see Appendix B1 of Reimann, H., The semi-simple zeta function of quaternionic Shimura varieties, LNM 1657, Springer, 1997.