116. *On Fatou- and Plessner-Type Theorems*

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This is a résumé of parts of my papers [4]–[6] published or unpublished. We give explanations to the diagramme.

f is a "map" from U into Ω.

Fatou points, Meier points and Plessner points for f are defined suitably on the boundary ∂U of U.

F is Fatou-type theorem: If f is bounded in U, then almost every point of ∂U is a Fatou point. Here, "almost every" means "except for a set of Lebesgue measure zero on ∂U".

P is Plessner-type theorem: Almost every point of ∂U is either a Plessner point or a Fatou point.

MF is Topological Fatou-type theorem: If f is bounded in U, then nearly every point of ∂U is a Meier point. Here, "nearly every" means "except for a set of first Baire category on ∂U".

MP is Topological Plessner-type theorem: Nearly every point of ∂U is either a Plessner point or a Meier point.

Diagramme

U	Open disk $\lvert z\rvert<1$ in R^2				Open unit ball in R^3
Ω	Riemann sphere $\lvert w\rvert\leqq\infty$			R^1 added $-\infty$ and $+\infty$	
f	Meromorphic function	Quasi-conformal function	Algebroid function	Real-harmonic function	
F	Yes[1)]	No[5)]	Yes[8)]	Yes[1)]	Yes[1)]
P	Yes[2)]	No[5)]	Yes[8)]	Yes[11)]	Yes[12)]
MF	Yes[3)]	Yes[6)]	Yes[9)]	Yes[11)]	Yes[13)]
MP	Yes[4)]	Yes[7)]	Yes[10)]	Yes[11)]	Yes[14)]

Notes. 1) This is now classical. 2) Plessner [3], Satz I. 3) Meier [1], Satz 6. 4) Meier [1], Satz 5. 5) Noshiro [2], p. 119. 6) Yamashita [4], Theorem 1. 7) Yamashita [4], Theorem 2. 8) Yamashita [5], Theorem 1. 9) Yamashita [5], Theorem 3. 10) Yamashita [5], Theorem 2. 11) This is proved implicitly in [6]. 12) Yamashita [6], Theorem 2. 13) Yamashita [6], Theorem 3. 14) Yamashita [6], Theorem 1.

References

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