

## DAFTAR PUSTAKA

- [1] H. Paganetti, *Proton Therapy Physics (Series in Medical Physics and Biomedical Engineering)*. 2012.
- [2] IBA, “IBA to install Egypt’s first proton therapy center,” 2017. <https://iba-worldwide.com/content/iba-install-egypt-s-first-proton-therapy-center>.
- [3] B. Aksungur, “Medulloblastoma : Diagnosis , Treatment And Prognosis,” pp. 1–4, 2016.
- [4] R. A. Aman *et al.*, “Panduan Penatalaksanaan Tumor Otak,” 2016. [Online]. Available: <http://kanker.kemkes.go.id/guidelines.php?id=5>.
- [5] World Health Organization, “Cancer Incident in Indonesia,” *Int. Agency Res. Cancer*, vol. 858, pp. 1–2, 2020.
- [6] BPJS Kesehatan, “Laporan Pengelolaan Program Tahun 2019 & Laporan Keuangan Tahun 2019 (Auditan).” Badan Penyelenggara Jaminan Sosial Kesehatan, Jakarta Pusat.
- [7] M. C. Staff, “Medulloblastoma - Overview - Mayo Clinic,” 2019. <https://www.mayoclinic.org/diseases-conditions/medulloblastoma/cdc-20363524>.
- [8] B. Jones, P. Wilson, A. Nagano, J. Fenwick, and G. McKenna, “Dilemmas concerning dose distribution and the influence of relative biological effect in proton beam therapy of medulloblastoma,” *Br. J. Radiol.*, vol. 85, no. 1018, 2012, doi: 10.1259/bjr/24498486.
- [9] D. Sanchez-Parcerisa and J. Udías, “Teaching treatment planning for protons with educational open-source software: experience with FoCa and matRad,” *J. Appl. Clin. Med. Phys.*, vol. 19, no. 4, pp. 302–306, 2018, doi: 10.1002/acm2.12326.
- [10] T. Sato *et al.*, “Features of Particle and Heavy Ion Transport code System (PHITS) version 3.02,” *J. Nucl. Sci. Technol.*, vol. 55, no. 6, pp. 684–690, 2018, doi: 10.1080/00223131.2017.1419890.
- [11] Y. Adi, “Analisis Dosis Dan Waktu Terapi Proton Terhadap Boron Neutron



- Capture Therapy Pada Glioblastoma Menggunakan Program SHIELD-HIT12A,” Universitas Gadjah Mada, 2019.
- [12] Elfian, “Optimasi Dosis Radiasi Terapi Proton pada Glioblastoma Multiforme (GBM) menggunakan Particle and Heavy Ion Transport Code System (PHITS),” Universitas Gadjah Mada, 2021.
  - [13] L. Padovani, G. Horan, and T. Ajithkumar, “Radiotherapy Advances in Paediatric Medulloblastoma Treatment,” *Clin. Oncol.*, vol. 31, no. 3, pp. 171–181, 2019, doi: 10.1016/j.clon.2019.01.001.
  - [14] D. Giantsoudi *et al.*, “Evaluating Intensity Modulated Proton Therapy Relative to Passive Scattering Proton Therapy for Increased Vertebral Column Sparing in Craniospinal Irradiation in Growing Pediatric Patients,” *Int. J. Radiat. Oncol. Biol. Phys.*, vol. 98, no. 1, pp. 37–46, 2017, doi: 10.1016/j.ijrobp.2017.01.226.
  - [15] G. F. Knoll and H. W. Kraner, “Radiation Detection and Measurement,” *Proceedings of the IEEE*, vol. 69, no. 4. John Wiley & Sons, Inc, New York, USA, p. 495, 1981, doi: 10.1109/PROC.1981.12016.
  - [16] W. D. Newhauser and R. Zhang, “The physics of proton therapy,” *Physics in Medicine and Biology*, vol. 60, no. 8. IOP Publishing, pp. R155–R209, 2015, doi: 10.1088/0031-9155/60/8/R155.
  - [17] K. Faiz M. and G. John P., *The Physics of Radiation Therapy*, 5th ed. Philadelphia, USA: Lippincott Williams & Wilkins, 2014.
  - [18] P. E.B, *Radiation Oncology Physics: A Handbook for Teachers and Students*. Vienna: International Atomic Energy Agency, 2005.
  - [19] M. Goitein, *Radiation Oncology: A Physicist’s Eye View*. Springer, 2009.
  - [20] R. Mohan and D. Grosshans, “Proton Therapy - Present and Future,” *HHS Public Access*, vol. 176, no. 1, pp. 139–148, 2016, doi: 10.1016/j.addr.2016.11.006.Proton.
  - [21] M. Hu, L. Jiang, X. Cui, J. Zhang, and J. Yu, “Proton beam therapy for cancer in the era of precision medicine 11 Medical and Health Sciences 1112 Oncology and Carcinogenesis,” *J. Hematol. Oncol.*, vol. 11, no. 1, pp. 1–16, 2018, doi: 10.1186/s13045-018-0683-4.



- [22] H. Paganetti, H. Jiang, S. Y. Lee, and H. M. Kooy, “Accurate Monte Carlo simulations for nozzle design, commissioning and quality assurance for a proton radiation therapy facility,” *Med. Phys.*, vol. 31, no. 7, pp. 2107–2118, 2004, doi: 10.1118/1.1762792.
- [23] “Information About the PBT Center | 北海道大学病院陽子線治療センター.” <https://www.huhp.hokudai.ac.jp/proton/english/> (accessed Sep. 23, 2021).
- [24] L. Schaub, S. B. E. N. Harrabi, and J. Debus, “BJR 125 TH ANNIVERSARY : REVIEW ARTICLE Particle therapy in the future of precision therapy,” no. February, 2020.
- [25] R. Pidikiti *et al.*, “Commissioning of the world’s first compact pencil-beam scanning proton therapy system,” *J. Appl. Clin. Med. Phys.*, vol. 19, no. 1, pp. 94–105, 2018, doi: 10.1002/acm2.12225.
- [26] P. Zanzonico, L. Dauer, J. S. Germain, and A. Positron, “Paper AND CYCLOTRON FACILITIES,” 2007.
- [27] W. Kleeven *et al.*, “THE IBA SUPERCONDUCTING SYNCHROCYCLOTRON PROJECT S2C2,” pp. 115–119.
- [28] B. Jones, “Proton radiobiology and its clinical implications,” *Ecancermedicalscience*, vol. 11, pp. 1–11, 2017, doi: 10.3332/ecancer.2017.777.
- [29] ICRP, “The 2007 Recommendations of the International Commission on Radiological Protection. ICRP publication 103.,” *Ann. ICRP*, vol. 37, no. 2–4, pp. 1–332, 2007, doi: 10.1016/j.icrp.2007.10.003.
- [30] W. Dörr, T. Herrmann, and K. Trott, “Normal tissue tolerance,” vol. 6, no. Suppl 5, pp. 840–851, 2017, doi: 10.21037/tcr.2017.06.45.
- [31] F. Dionisi *et al.*, “Organs at risk’s tolerance and dose limits for head and neck cancer re-irradiation: A literature review,” *Oral Oncol.*, vol. 98, no. April, pp. 35–47, 2019, doi: 10.1016/j.oraloncology.2019.08.017.
- [32] P. Brodin and T. A. Wolfgang, “Revisiting the dose constraints for head and neck OARs in the current era of IMRT,” *Oral Oncol.*, vol. 18, pp. 8–18,



2018, doi: 10.1016/j.oraloncology.2018.08.018.Revisiting.

- [33] O. Grundmann, G. C. Mitchell, and K. H. Limesand, "Sensitivity of salivary glands to radiation: from animal models to therapies," *J. Dent. Res.*, vol. 88, no. 10, pp. 894–903, Oct. 2009, doi: 10.1177/0022034509343143.
- [34] BAPETEN, "Keputusan Kepala BAPETEN No. 1 Tahun 1999 tentang Ketentuan Keselamatan Kerja Terhadap Radiasi," 1999.
- [35] E. J. Hall, *Radiation biology: A Handbook for Teachers and Students*, Training C., vol. 42. Vienna: IAEA, 2010.
- [36] L. W. Brady, H.-P. Heilmann, and M. Molls, *New Technologies in Radiation Oncology*. Berlin: Springer, 2006.
- [37] G. Dhall, "Medulloblastoma," *Journal Child Neurol.*, vol. 24, no. 11, 2009, doi: 10.5005/jp/books/11682\_3.
- [38] Q. T. Ostrom *et al.*, "CBTRUS statistical report: primary brain and central nervous system tumors diagnosed in the United States in 2007-2011," *Neuro. Oncol.*, vol. 16 Suppl 4, no. Suppl 4, pp. iv1–iv63, Oct. 2014, doi: 10.1093/neuonc/nou223.
- [39] V. Ramaswamy *et al.*, "Medulloblastoma subgroup-specific outcomes in irradiated children: who are the true high-risk patients?," *Neuro. Oncol.*, vol. 18, no. 2, pp. 291–297, Feb. 2016, doi: 10.1093/neuonc/nou357.
- [40] M. F. Roussel and J. L. Stripay, "Modeling pediatric medulloblastoma," *Brain Pathol.*, vol. 30, no. 3, pp. 703–712, 2020, doi: 10.1111/bpa.12803.
- [41] "Brain Cancers - ACCO." <https://www.acco.org/brain-cancers/> (accessed Nov. 04, 2021).
- [42] N. E. Millard and K. C. De Braganca, "Medulloblastoma," *J. Child Neurol.*, vol. 31, no. 12, pp. 1341–1353, 2016, doi: 10.1177/0883073815600866.
- [43] A. Thomas and G. Noël, "Medulloblastoma: Optimizing care with a multidisciplinary approach," *J. Multidiscip. Healthc.*, vol. 12, pp. 335–347, 2019, doi: 10.2147/JMDH.S167808.
- [44] A. Quinlan and D. Rizzolo, "Understanding medulloblastoma," *J. Am. Acad. Physician Assist.*, vol. 30, no. 10, pp. 30–36, 2017, doi: 10.1097/01.JAA.0000524717.71084.50.



- [45] S. A. Terezakis and S. M. Macdonald, *Target Volume Delineation for Pediatric Cancers*, vol. D. 2019.
- [46] S. Raychaudhuri, "Introduction to monte carlo simulation," *Proc. - Winter Simul. Conf.*, pp. 91–100, 2008, doi: 10.1109/WSC.2008.4736059.
- [47] I. Lux and L. Koblinger, *Particle Transport Methods : Neutron and Photon Calculations Authors*. 1991.
- [48] K. Johnsen, "Simulations of a Therapeutic Proton Beam with FLUKA Monte Carlo Code and Varian Eclipse Proton Planning Software," 2013.
- [49] T. Sato *et al.*, "Overview of the PHITS code and its application to medical physics," *Prog. Nucl. Sci. Technol.*, vol. 4, pp. 879–882, 2014, doi: 10.15669/pnst.4.879.
- [50] L. A. N. Laboratory, "MCNPX USER'S MANUAL." United States Government, 2008.
- [51] Y. H. Eun, W. E. Bolch, and K. F. Eckerman, "Revisions to the ornl series of adult and pediatric computational phantoms for use with the mird schema," *Health Phys.*, vol. 90, no. 4, pp. 337–356, 2006, doi: 10.1097/01.HP.0000192318.13190.c4.
- [52] A. C. Paulino, A. Narayana, M. N. Mohideen, and S. Jeswani, "Posterior fossa boost in medulloblastoma: An analysis of dose to surrounding structures using 3-dimensional (conformal) radiotherapy," *Int. J. Radiat. Oncol. Biol. Phys.*, vol. 46, no. 2, pp. 281–286, 2000, doi: 10.1016/S0360-3016(99)00367-3.
- [53] J. Van De Walle, "IBA accelerators for proton and ion beam therapy," no. January, pp. 1–19, 2016.
- [54] IBA, "ProteusOne factsheet."
- [55] M. Cubillos-Mesías *et al.*, "Impact of robust treatment planning on single- and multi-field optimized plans for proton beam therapy of unilateral head and neck target volumes," *Radiat. Oncol.*, vol. 12, no. 1, p. 190, 2017, doi: 10.1186/s13014-017-0931-8.
- [56] T. Bortfeld, H. Paganetti, and H. Kooy, *Proton Beam Radiotherapy — The State of the Art*, vol. 32, no. 6. 2005.





- [57] T. I. Yock *et al.*, “Long-term toxic effects of proton radiotherapy for paediatric medulloblastoma: A phase 2 single-arm study,” *Lancet Oncol.*, vol. 17, no. 3, pp. 287–298, 2016, doi: 10.1016/S1470-2045(15)00167-9.
- [58] K. Håkansson, L. Specht, M. C. Aznar, J. H. Rasmussen, S. M. Bentzen, and I. R. Vogelius, “Prescribing and evaluating target dose in dose-painting treatment plans,” *Acta Oncol. (Madr.)*, vol. 53, no. 9, pp. 1251–1256, 2014, doi: 10.3109/0284186X.2014.906747.
- [59] S. Henrotin *et al.*, “Commissioning and testing of the first IBA S2C2,” *CYC 2016 - Proc. 21st Int. Conf. Cyclotrons their Appl.*, pp. 178–180, 2016.

