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Rational solutions of order N to the KPI equation with multi-parameters and the explicit case of order 3

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Abstract

We present multiparametric rational solutions to the Kadomtsev-Petviashvili equation (KPI). These solutions of order N depend on $2N - 2$ real parameters.

Explicit expressions of the solutions at order 3 are given. They can be expressed as a quotient of a polynomial of degree $2N(N + 1) - 2$ in x , y and t by a polynomial of degree $2N(N + 1)$ in x , y and t , depending on $2N - 2$ real parameters. We study the patterns of their modulus in the (x,y) plane for different values of time t and parameters.

PACS numbers :

33Q55, 37K10, 47.10A-, 47.35.Fg, 47.54.Bd

1 Introduction

The Kadomtsev-Petviashvili equation (KPI) is a well-known nonlinear partial differential equation in two spatial and one temporal coordinates which can be written in the following form :

$$(4u_t - 6uu_x + u_{xxx})_x = 3u_{yy}, \quad (1)$$

with subscripts x , y and t denoting partial derivatives.

The KP equation first appeared in 1970, in a paper written by Kadomtsev and Petviashvili [65]. The discovery of the KP equation happened almost simultaneously with the development of the inverse scattering transform (IST) as it is

explained in Manakov et al. [68]. In 1974 Dryuma showed how the KP equation could be written in Lax form [5], and Zakharov extended the IST to equations in two spatial dimensions, including the KP equation, and obtained several exact solutions to the KP equation.

In 1981 Dubrovin constructed for the first time [7] the solutions to KPI given in terms of Riemann theta functions in the frame of algebraic geometry .

From the 1980's, a lot of methods have been found to solve that equation. We can quote the nonlocal Riemann-Hilbert problem, the d-bar problem or inverse scattering problem using integration in the complex plane. More details can be found in the book by Ablowitz and Clarkson published in 1991 [1].

We can cite in particular the works of Krichever [67], Satsuma and Ablowitz in 1979 [73], Matveev in 1979 [69], Freeman and Nimmo in 1983 [8, 9], Pelinovsky and Stepanyants in 1993 [71], Pelinovsky in 1994 [72], Ablowitz and Villarroel [2, 75] in 1997-1999, Biondini and Kodama [3, 66, 4] in 2003-2007.

This paper is part of a program of research of rational solutions of partial differential equations. New solutions of the KPI equation are presented here. We express rational solutions in terms of a quotient of a polynomial of degree $2N(N+1) - 2$ in x, y and t by a polynomial of degree $2N(N+1)$ in x, y and t depending on $2N - 2$ real parameters. This representation allows to obtain an infinite hierarchy of solutions to the KPI equation, depending on $2N - 2$ real parameters .

That provides an effective method to construct an infinite hierarchy of rational solutions of order N depending on $2N - 2$ real parameters. We present here only the rational solutions of order 3, depending on 4 real parameters, and the representations of their modulus in the plane of the coordinates (x, y) according to real parameters a_1, b_1, a_2, b_2 and time t .

2 Rational solutions of order N to the KPI equation depending on $2N - 2$ real parameters

We consider the matrix M defined by :

$$m_{ij} = \sum_{k=0}^i c_{i-k} \left(\frac{\sqrt{p^2-4}}{3} \partial_p \right)^k \sum_{l=0}^j c_{j-l} \left(\frac{\sqrt{q^2-4}}{3} \partial_q \right)^l \times \left(\frac{1}{p+q} \exp \left(\frac{1}{2}(p+q)(-x + \frac{3}{4}t) - \frac{1}{4}(p^2 - q^2)iy \right) \right)_{p=q=-1}. \quad (2)$$

The coefficients c_j are defined by :

$$c_{2j} = 0, \quad c_{2j+1} = a_j + ib_j \quad 1 \leq j \leq N-1, \quad (3)$$

where a_j and b_j are arbitrary real numbers.

Then we have the following result :

Theorem 2.1 *The function v defined by*

$$v(x, y, t) = -2 \partial_x^2 (\ln \det(m_{2i-1, 2j-1})_{1 \leq i, j \leq N}) \quad (4)$$

is a solution to the KPI equation (1), depending on $2N - 2$ parameters a_k, b_k , $1 \leq k \leq N - 1$.

3 Rational solutions of order 3 depending on 4 parameters

In the following, we explicitly construct rational solutions to the KPI equation of order 3 depending on 4 parameters.

Because of the length of the expression of the solution, we only give the expression without parameters and we present it in the appendix.

We give patterns of the modulus of the solutions in the plane (x, y) of coordinates in functions of parameters a_1, b_1, a_2, b_2 and time t .

In all the following figures, if the parameters are not quoted then there are equal to 0.

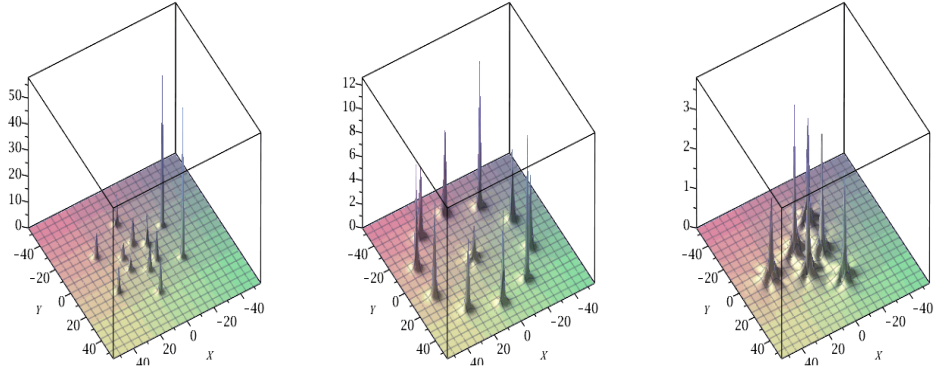


Figure 1. Solution of order 3 to KPI, on the left for $t = 0$, $a_1 = 10^4$; in the center for $t = 0$, $a_2 = 10^8$; on the right for $t = 0$, $b_1 = 10^4$.

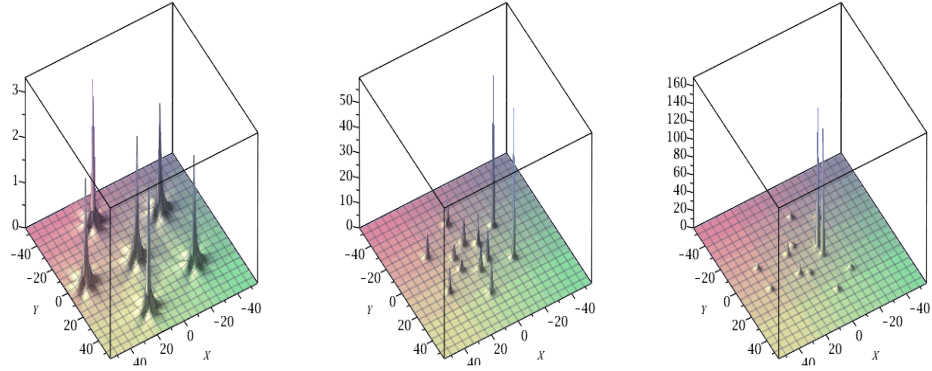


Figure 2. Solution of order 3 to KPI, on the left for $t = 0$, $b_2 = 10^8$; in the center for $t = 0$, $a_1 = 10^4$, $a_2 = 10^4$; on the right for $t = 0$, $a_1 = 10^4$, $a_2 = 10^4$, $b_1 = 10^4$, $b_2 = 10^8$.

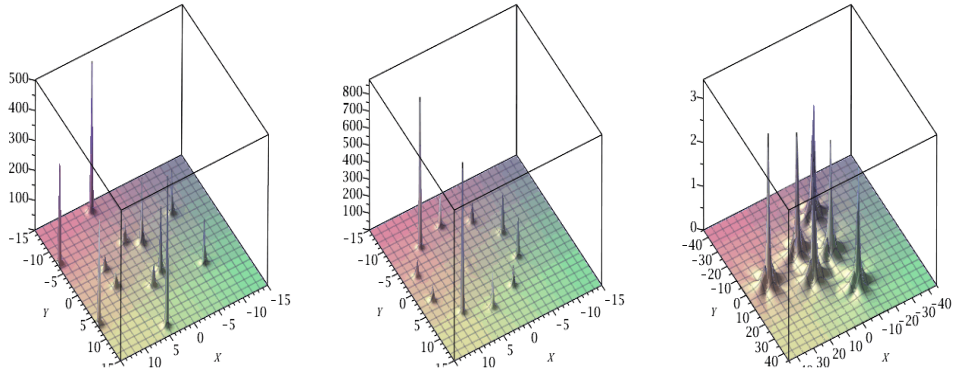


Figure 3. Solution of order 3 to KPI, on the left for $a_1 = 10^3$; in the center for $a_2 = 10^5$; on the right for $b_1 = 10^4$; here $t = 1$.

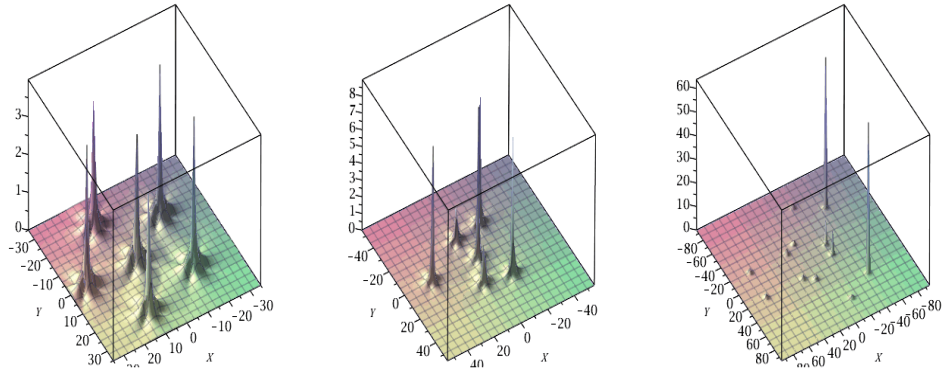


Figure 4. Solution of order 3 to KPI, on the left for $t = 1$, $b_2 = 10^7$; in the

center for $t = 1$, $a_1 = 10^3$, $a_2 = 10^5$, $b_1 = 10^4$, $b_2 = 10^7$; on the right for $t = 1$,
 $a_1 = 10^5$, $a_2 = 10^5$, $b_1 = 10^5$, $b_2 = 10^5$.

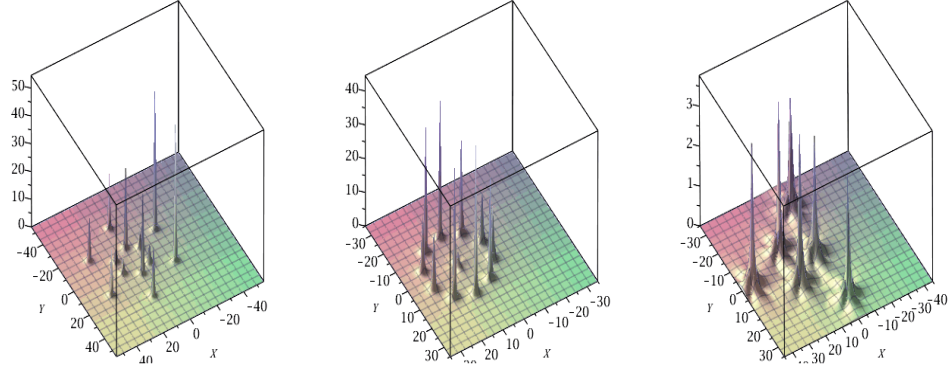


Figure 5. Solution of order 3 to KPI, on the left for $t = 10$, $a_1 = 10^4$; in the center for $t = 10$, $a_2 = 10^4$; on the right for $t = 10$, $b_1 = 10^4$.

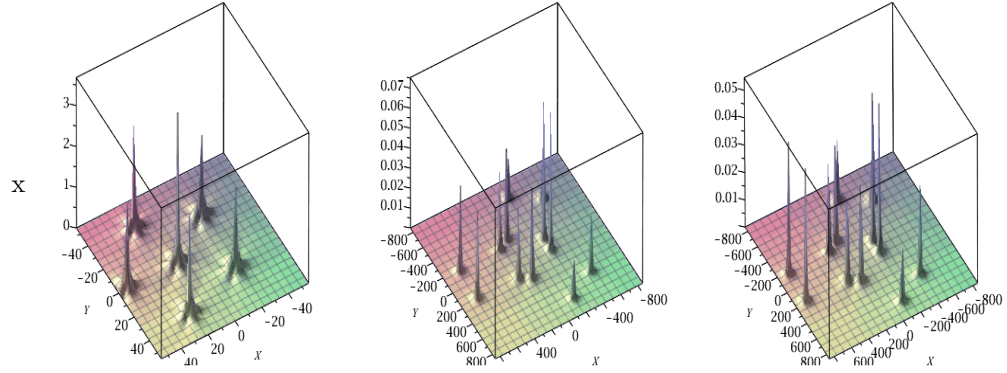


Figure 6. Solution of order 3 to KPI, on the left for $t = 10$, $b_1 = 10^8$; in the center for $t = 10$, $a_1 = 10^8$, $a_2 = 10^8$, $b_1 = 10^8$, $b_2 = 10^8$; on the right for $t = 10^2$, $a_1 = 10^8$, $a_2 = 10^8$, $b_1 = 10^8$, $b_2 = 10^8$.

The previous study shows the appearance of different types of configurations.
 If $a_1 \neq 0$ and the other parameters equal to 0, we get 12 peaks on two concentric rings, 6 on the first and 6 on the second one.
 For $a_2 \neq 0$ and the other parameters equal to 0, we get 10 peaks on a ring and a peak in the center of the ring.
 If $b_1 \neq 0$ and the other parameters equal to 0, we get 6 peaks on a triangle.
 For $b_2 \neq 0$ and the other parameters equal to 0, we get 5 peaks on a ring and one peak in the center of the ring.
 In the case where two parameters a_1 and a_2 are not equal to 0, the other parameters being equal to 0, for the same values of parameters, we get 12 peaks on two concentric rings, which shows the predominance of the parameter a_1 over

the parameter a_2 on the structure of the solutions.

In the case where two parameters b_1 and b_2 are not equal to 0, the other parameters being equal to 0, for the same values of parameters, we get 6 peaks on a ring with a peak in the center of the ring, which shows also the predominance of the parameter b_1 over the parameter b_2 on the structure of the solutions.

In the case where all parameters a_1, a_2, b_1, b_2 , are not equal to 0, for the same values of parameters, we get 6 couples of 2 peaks on two rings.

4 Conclusion

In this article, rational solutions to the KPI equation have been built in terms of quotients of a polynomial of degree $2N(N+1)-2$ in x, y and t by a polynomial of degree $2N(N+1)$ in x, y and t , depending on $2N-2$ parameters.

Other approaches to build solutions of KPI equation had been realized, and we can mention those most significant. In 1990, Hirota and Ohta [62] built, the solutions as particular case of a hierarchy of coupled bilinear equations given in terms of Pfaffians. In 1993, the Darboux transformations was used to obtain among others the solutions of the multicomponent KP hierarchy [70], but no explicit solutions were given. More recently, in 2013, wronskians identities of bilinear KP hierarchy were given [64]. In 2014, solutions of KPI equation were constructed [76]; an explicit solution at order 1 was built and only one asymptotic study has been carried out for order higher than 2.

In 2016, three types of representations of the solutions were given in [42], in terms of Fredholm determinants, wronskians and degenerate determinants.

The structures of the solutions given in this paper looks like to these given in [42] which were deduced from the solutions to the NLS equation [15, 32, 39].

But, to the best of my knowledge, some of the structures of these solutions had never been presented. It will be relevant to find explicit solutions for higher orders and try to describe the structure of these rational solutions.

References

- [1] M.J. Ablowitz, P.A. Clarkson, Solitons, Nonlinear Evolution Equations and Inverse Scattering, Cambridge University Press, 1991
- [2] M.J Ablowitz, J. Villarroel, Solutions to the time dependent schrödinger and the Kadomtsev-Petviashvili equations, Phys. Rev. Lett., V. 78, 570 , 1997
- [3] G. Biondini, Y. Kodama, On a family of solutions of the KadomtsevPetviashvili equation which also satisfy the Toda lattice hierarchy, J. Phys. A: Math. Gen., V. 36, 1051910536, 2003

- [4] G. Biondini, Line Soliton Interactions of the Kadomtsev-Petviashvili Equation, PRL, V. 99, 064103-1-4, 2007
- [5] V.S. Dryuma, On analytical solutions of the two-dimensional Kortewegde Vries equation, Pisma Zh. Eksp. Teor. Fiz., V. 19, N. 12, 219225, 1973
- [6] P. Dubard, V.B. Matveev, Multi-rogue waves solutions : from the NLS to the KP-I equation, Nonlinearity, V. 26, 93-125, 2013
- [7] B.A. Dubrovin Theta functions and non-linear equations, Russian Math. Surveys, V.36, N.2, 11-92, 1981
- [8] N. C Freeman, J.J.C. Nimmo Rational solutions of the KdV equation in wronskian form, Phys. Letters, V. 96 A, N. 9, 443-446, 1983
- [9] N. C Freeman, J.J.C. Nimmo The use of Bäcklund transformations in obtaining N-soliton solutions in wronskian form, J. Phys. A : Math. Gen., V. 17 A, 1415-1424, 1984
- [10] P. Gaillard, V.B. Matveev, Wronskian addition formula and its applications, Max-Planck-Institut für Mathematik, MPI 02-31, V. 161, 2002
- [11] P. Gaillard, A new family of deformations of Darboux-Pöschl-Teller potentials, Lett. Math. Phys., V. 68, 77-90, 2004
- [12] P. Gaillard, V.B. Matveev, New formulas for the eigenfunctions of the two-particle Calogero-Moser system, Lett. Math. Phys., V. 89, 1-12, 2009
- [13] P. Gaillard, V.B. Matveev, Wronskian and Casorai determinant representations for Darboux-Pöschl-Teller potentials and their difference extensions, J. Phys A : Math. Theor., V. 42, 404409-1-16, 2009
- [14] P. Dubard, P. Gaillard, C. Klein, V. B. Matveev, On multi-rogue wave solutions of the NLS equation and positon solutions of the KdV equation, Eur. Phys. J. Spe. Top., V. 185, 247-258, 2010
- [15] P. Gaillard, Families of quasi-rational solutions of the NLS equation and multi-rogue waves, J. Phys. A : Meth. Theor., V. 44, 435204-1-15, 2011
- [16] P. Gaillard, Wronskian representation of solutions of the NLS equation and higher Peregrine breathers, J. Math. Sciences : Adv. Appl., V. 13, N. 2, 71-153, 2012
- [17] P. Gaillard, Degenerate determinant representation of solution of the NLS equation, higher Peregrine breathers and multi-rogue waves, J. Math. Phys., V. 54, 013504-1-32, 2013
- [18] P. Gaillard, Wronskian representation of solutions of NLS equation and seventh order rogue waves, J. Mod. Phys., V. 4, N. 4, 246-266, 2013

- [19] P. Gaillard, V.B. Matveev, Wronskian addition formula and Darboux-Pöschl-Teller potentials, *J. Math.*, V. **2013**, ID 645752, 1-10, 2013
- [20] P. Gaillard, Two-parameters determinant representation of seventh order rogue waves solutions of the NLS equation, *J. Theor. Appl. Phys.*, V. **7**, N. **45**, 1-6, 2013
- [21] P. Gaillard, Deformations of third order Peregrine breather solutions of the NLS equation with four parameters, *Phys. Rev. E*, V. **88**, 042903-1-9, 2013
- [22] P. Gaillard, Two parameters deformations of ninth Peregrine breather solution of the NLS equation and multi rogue waves, *J. Math.*, V. **2013**, 1-111, 2013
- [23] P. Gaillard, Six-parameters deformations of fourth order Peregrine breather solutions of the NLS equation, *J. Math. Phys.*, V. **54**, 073519-1-22, 2013
- [24] P. Gaillard, The fifth order Peregrine breather and its eight-parameters deformations solutions of the NLS equation, *Commun. Theor. Phys.*, V. **61**, 365-369, 2014
- [25] P. Gaillard, Ten parameters deformations of the sixth order Peregrine breather solutions of the NLS equation, *Phys. Scripta*, V. **89**, 015004-1-7, 2014
- [26] P. Gaillard, Higher order Peregrine breathers, their deformations and multi-rogue waves, *J. Of Phys. : Conf. Ser.*, V. **482**, 012016-1-7, 2014
- [27] P. Gaillard, M. Gastineau, Eighteen parameter deformations of the Peregrine breather of order ten solutions of the NLS equation, *Int. J. Mod. Phys. C*, V. **26**, N. 2, 1550016-1-14, 2014
- [28] P. Gaillard, Two parameters wronskian representation of solutions of nonlinear Schrödinger equation, eight Peregrine breather and multi-rogue waves, *J. Math. Phys.*, V. **5**, 093506-1-12, 2014
- [29] P. Gaillard, Hierarchy of solutions to the NLS equation and multi-rogue waves, *J. Phys. : Conf. Ser.*, V. **574**, 012031-1-5, 2015
- [30] P. Gaillard, Tenth Peregrine breather solution of the NLS, *Ann. Phys.*, V. **355**, 293-298, 2015
- [31] P. Gaillard, M. Gastineau, The Peregrine breather of order nine and its deformations with sixteen parameters solutions of the NLS equation *Phys. Lett. A*, V. **379**, 1309-1313, 2015
- [32] P. Gaillard, Other $2N-2$ parameters solutions to the NLS equation and $2N+1$ highest amplitude of the modulus of the N -th order AP breather, *J. Phys. A: Math. Theor.*, V. **48**, 145203-1-23, 2015

- [33] P. Gaillard, Multi-parametric deformations of the Peregrine breather of order N solutions to the NLS equation and multi-rogue waves, *Adv. Res.*, V. **4**, N. **5**, 346-364, 2015
- [34] P. Gaillard, Higher order Peregrine breathers solutions to the NLS equation, *Jour. Phys. : Conf. Ser.*, V. **633**, 012106-1-6, 2016
- [35] P. Gaillard, M. Gastineau Patterns of deformations of Peregrine breather of order 3 and 4, solutions to the NLS equation with multi-parameters, *Journal of Theoretical and Applied Physics*, V. **10**,1-7, 2016
- [36] P. Gaillard, M. Gastineau Twenty parameters families of solutions to the NLS equation and the eleventh Peregrine breather, *Commun. Theor. Phys*, V. **65**, N. **2**, 136-144, 2016
- [37] P. Gaillard, Rational solutions to the KPI equation and multi rogue waves, *Annals Of Physics*, V. **367**, 1-5, 2016
- [38] P. Gaillard, M. Gastineau Twenty two parameters deformations of the twelfth Peregrine breather solutions to the NLS equation, *Adv. Res.*, V. **10**, 83-89, 2016
- [39] P. Gaillard, Towards a classification of the quasi rational solutions to the NLS equation, *Theor. And Math. Phys.*, V. **189**, N. **1**, 1440-1449, 2016
- [40] P. Gaillard, Fredholm and Wronskian representations of solutions to the KPI equation and multi-rogue waves, *Jour. of Math. Phys.*, V. **57**, 063505-1-13, doi: 10.1063/1.4953383, 2016
- [41] P. Gaillard, M. Gastineau Families of deformations of the thirteenth Peregrine breather solutions to the NLS equation depending on twenty four parameters, *Jour. Of Bas. And Appl. Res. Int.*, V. **21**, N. **3**, 130-139, 2017
- [42] P. Gaillard, From Fredholm and Wronskian representations to rational solutions to the KPI equation depending on $2N^2$ parameters, *Int. Jour. of Appl. Sci. And Math.*, V. **4**, N. **3**, 60-70, 2017
- [43] P. Gaillard, Families of rational solutions of order 5 to the KPI equation depending on 8 parameters, *New Hor. in Math. Phys.*, V. **1**, N. **1**, 26-31, 2017
- [44] P. Gaillard, 6-th order rational solutions to the KPI Equation depending on 10 parameters, *Jour. Of Bas. And Appl. Res. Int.*, V. **21**, N. **2**, 92-98, 2017
- [45] P. Gaillard, N -Order rational solutions to the Johnson equation depending on $2N - 2$ parameters, *Int. Jour. of Adv. Res. in Phys. Sci.*, V. **4**, N. **9**, 19-37, 2017

- [46] P. Gaillard, Families of rational solutions to the KPI equation of order 7 depending on 12 parameters, *Int. Jour. of Adv. Res. in Phys. Sci.*, V. **4**, N. 11, 24-30, 2017
- [47] P. Gaillard, Rational solutions to the Johnson equation and rogue waves, *Int. Jour. of Inn. In Sci. and Math.*, V. **6**, N. 1, 14-19, 2018
- [48] P. Gaillard, Multiparametric families of solutions of the KPI equation, the structure of their rational representations and multi-rogue waves, *Theo. And Mat. Phys.*, V. **196**, N. 2, 1174-1199, 2018
- [49] P. Gaillard, The Johnson equation, Fredholm and wronskian representations of solutions and the case of order three, *Adv. In Math. Phys.*, V. **2018**, 1-18, 2018
- [50] P. Gaillard, Families of Solutions of Order 5 to the Johnson Equation Depending on 8 Parameters, *NHIMP*, V. **2**, N. 4, 53-61, 2018
- [51] P. Gaillard, Multiparametric families of solutions to the Johnson equation, *J. Phys. : Conf. Series*, V. **1141**, 012102-1-10, 2018
- [52] P. Gaillard, Rational solutions to the Boussinesq equation, *Fund. Jour. Of Math. And Appl.*, V. , 109-112, 2019
- [53] P. Gaillard, Differential relations for the solutions to the NLS equation and their different representations, *Comm. In Adv. Math. Sci.*, V. **2**, N. 4, 1-4, 2019
- [54] P. Gaillard, Multi-parametric families of solutions of order N to the Boussinesq and KP equations and the degenerate rational case, *UJMA*, V. **3**, N. 2, 44-52, 2020
- [55] P. Gaillard, The mKdV equation and multi-parameters rational solutions, *Wave Motion*, V. **100**, 102667-1-9, 2021
- [56] P. Gaillard, Degenerate Riemann theta functions, Fredholm and wronskian representations of the solutions to the KdV equation and the degenerate rational case, *Jour. Of Geom. And Phys.*, V. **161**, 104059-1-12, 2021
- [57] P. Gaillard, 2N parameter solutions to the Burgers equation, *Jour. Of Appl. Nonlin. Dyn.*, V. **1**, N. **1**, 1-6, 2021
- [58] P. Gaillard, Multi-Parametric rational Solutions to the KdV equation, *Asi. Jour. Of Res. and Rev. In Phys.*, V. **3**, N. 3, 14-21, 2021
- [59] P. Gaillard, Multiparametric solutions to the Gardner equation and the degenerate rational case, *Jour. Of Appl. Ana. And Appl.*, V. **11**, N. 4, 2102-2113, 2021
- [60] P. Gaillard, Other families of rational solutions to the KPI equation, *Asi. Res. Jour Of Math.*, V. **17**, N. 6, 27-34, 2021

- [61] P. Gaillard, Rational solutions to the mKdV equation associated to particular polynomials, *Wave Motion*, V. **107**, 102824-1-11, 2021
- [62] R. Hirota, Y. Ohta Hierarchies of coupled soliton equations, *Phys. Soc. Japan*, V. 60, 798-809, 1991
- [63] R. Hirota, *The direct method in soliton theory*, Camb. Univ. Press, 2004
- [64] Y. Kang, Y. Zhang, L. Jin, Soliton solution to BKP equation in Wronskian form, *Appl. Math. Comp.*, V. 224, 250-258, 2013
- [65] B.B. Kadomtsev, V.I. Petviashvili, On the stability of solitary waves in weakly dispersing media, *Sov. Phys. Dokl.*, V. 15, N. 6, 539-541, 1970
- [66] Y. Kodama, Young diagrams and N solitons solutions to the KP equation, *J. Phys. A: Math. Gen.*, V. 37, 1116911190, 2004
- [67] I. Krichever, Rational solutions of the Kadomtsev-Petviashvili equation and integrable systems of n particles on a line, *Funct. Anal. and Appl.*, V. 12, N. 1 : 76-78, 1978
- [68] S.V. Manakov, V.E. Zakharov, L.A. Bordag, V.B. Matveev, Two-dimensional solitons of the Kadomtsev-Petviashvili equation and their interaction, *Phys. Letters*, V. 63A, N. 3, 205-206, 1977
- [69] V.B. Matveev, Darboux transformation and explicit solutions of the Kadomtsev-Petviashvili equation depending on functional parameters, *Letters in Mathematical Physics*, V. 3, 213-216, 1979
- [70] W. Oevel, Darboux theorems and wronskian formulas for integrable systems I : constrained KP flows, *Physica A*, V. 195, 533-576, 1993
- [71] D.E. Pelinovsky, Y.A. Stepanyants , New multisolitons of the Kadomtsev-Petviashvili equation, *Phys. JETP Lett.*, V. 57, 24-28, 1993
- [72] D.E. Pelinovsky, Rational solutions of the Kadomtsev-Petviashvili hierarchy and the dynamics of their poles. I. New form of a general rational solution, *J.Math.Phys.*, V. 35, 5820-5830, 1994
- [73] J. Satsuma, M.J. Ablowitz, Two-dimensional lumps in nonlinear dispersive systems, *J. Math. Phys.*, V. 20, 1496-1503, 1979
- [74] A.P. Veselov, Rational solutions of the Kadomtsev-Petviashvili equation and hamiltonian systems, *Usp. Mat. Nauk.*, V. 35, N. 1, 195-196, 1980
- [75] J. Villarroel, M.J Ablowitz, On the discrete spectrum of the nonstationary Schrödinger equation and multipole lumps of the Kadomtsev-Petviashvili I equation, *Commun. Math. Phys.*, V. 207, 1-42, 1999
- [76] T. Xu, F.W. Sun, Y. Zhang, J. Li, Multi-component wronskian solution to the Kadomtsev-Petviashvili equation, *Comp. Math. Math. Phys. B*, 54, 97-113, 2014

Appendix The general solution depending on 4 parameter being too large, we present only the solution without parameters. In can be written as :

$$v(x, y, t) = -2 \frac{n_3(x, y, t)}{(d_3(x, y, t))^2}$$

with

$$\begin{aligned} n_3(x, y, t) = & -3377699720527872x^{22} + (55732045388709888t + 272467777455915008t^2 + (-4291367494930661376t - \\ & 438889857436090368t^2 - 30399297484750848y^2 - 10655516718358593536t^2 + (2194449287180451840t^3 + \\ & 4559894622711262720ty^2 + 32185256211979960320t^2 + 268346983796871004160 + 2229281815548395520y^2 + \\ & 159832750775378903040t)x^{19} + (-118219490218475520y^4 - 79015655462215352320y^2 - 152879967006904811520t^3 - \\ & 3823944519105411809280t - 31767265871564636160ty^2 - 1138808349274574684160t^2 - 4877083144468331233280 - \\ & 7817725585580359680t^4 - 3248924918682746880t^2y^2)x^{18} + (25811625503961529712640t^2 + 1796373301367406592000y^2 + \\ & 214429044633061294080t^2y^2 + 14620162134072360960t^3y^2 + 5124637571735586078720t^3 + 1595963117949419520ty^4 + \\ & 67958991866047800279040 + 21107859081066971136t^5 + 515969888648303738880t^4 + 7802486354419384320y^4 + \\ & 65840622450322471649280t + 1066711348739907256320ty^2)x^{17} + (-109699408391836501278720t^3 - \\ & 419733968120805756764160t^2 - 866477146292109453557760t - 44854200547267313664t^6 - 253327479039590400y^6 - \\ & 16334782259907180625920t^4 - 99481701018847150080ty^4 - 753040926423114370252800 - 29326224801537279918080y^2 - \\ & 22903759592434434048000ty^2 - 10174264876927549440t^2y^4 - 911323439690510499840t^3y^2 - 46601766802355650560t^4y^2 - \\ & 1315723216053174534144t^5 - 6800284848216908759040t^2y^2 - 247945677484882657280y^4)x^{16} + (6793167708394783548375040 + \\ & 27201139392867635036160t^3y^2 + 76892915223886823424t^7 + 596890206113082900480t^2y^4 + 2975348129818591887360ty^4 + \\ & 40697059507710197760t^3y^4 + 351914697618447359016960ty^2 + 5027548408018779504640y^4 + 111844240325653561344t^5y^2 + \\ & 5198862877752656721346560t^2 + 329098225175509503836160t^4 + 364818141054811661926400y^2 + \\ & 39203477423777233502208t^5 + 3039929748475084800ty^6 + 1678935872483223027056640t^3 + 14861878770322636800y^6 + \\ & 2631446432106349068288t^6 + 2733970319071531499520t^4y^2 + 9036491117077372443033600t + 137422557554606604288000t^2y^2)x^{15} + \\ & (-5083026253360219992064000t^2 - 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 $51408095320536514560 t^{11} y^8 - 25777278565283266560 t^9 y^{10} + 24996148911789834240 t^7 y^{12} + 44437598065404149760 t^5 y^{14} +$
 $23511956648361984000 t^3 y^{16} + 3901243177209692160 ty^{18} - 121167121902820392960 t^{16} y^2 - 530145982993032806400 t^{14} y^4 -$
 $1203936050511756656640 t^{12} y^6 - 1415406932130099363840 t^{10} y^8 - 577467849291690147840 t^8 y^{10} +$
 $454026570132891893760 t^6 y^{12} + 577539153307946188800 t^4 y^{14} + 187107676018641469440 t^2 y^{16} - 3264783981861666816000 t^{15} y^2 -$
 $12541283463751689830400 t^{13} y^4 - 24495178509700489543680 t^{11} y^6 - 24034057555237090099200 t^9 y^8 -$
 $7670030420629813985280 t^7 y^{10} + 5042994083482986086400 t^5 y^{12} + 4245641884964015308800 t^3 y^{14} +$
 $709874261764740218880 ty^{16} - 32562661106810880 t^{18} y^2 - 181284522653122560 t^{16} y^4 - 541653102231552000 t^{14} y^6 -$
 $876274352054599680 t^{12} y^8 - 527262516108066816 t^{10} y^{10} + 639106080130990080 t^8 y^{12} + 1514918115866050560 t^6 y^{14} +$
 $1202315964973056000 t^4 y^{16} + 398990779487354880 t^2 y^{18} x^2 + (1675381234445444597069905920000 t^2 +$
 $82627592245174390216458240000 t^4 y^4 + 5727707949089956036608000000 t^6 y^6 - 201920742594771595296768000 t^2 y^8 +$
 $1535653183055440379330560000 t^4 y^4 + 13775987840151160614813696000 t^6 y^2 + 4100899425044483095920640000 t^5 y^4 +$
 $47297162716559562850172928000 t^7 y^2 + 10498959712563578277986304000 t^3 y^6 - 755917174531982534639616000 ty^8 +$
 $118912377943903232537395200000 t^3 y^4 + 11154792271743149018185728000 ty^6 + 250981491789306552322621440000 t^5 y^2 +$
 $13621565206836216198070272000 t^2 y^6 + 126433251454201897257271296000 t^6 y^2 + 115791330667627847680 t^{16} -$
 $2089096018147420405760 y^{16} + 161011728948937516646400 t^{15} + 1815604636131969623654400 t^{14} -$
 $85546775641828045619200 y^{14} + 16851391351048544609894400 t^{13} + 129941997981194662812057600 t^{12} -$
 $3151060122520116422246400 y^{12} + 836777368820684096431718400 t^{11} + 20296784653963846804832256000 t^9 -$
 $264454466614155319978229760000 y^2 - 429788370695701757543055360000 ty^2 - 167124944735334319395962880000 t^2 y^2 +$
 $333471830967655308302745600000 t^4 y^2 + 110471014000348566965452800000 t^2 y^4 + 202972002588585953392066560000 t^3 y^2 +$
 $52681238062277818035732480000 ty^4 + 741897874449568874606100480000 t + 4589971349874067636224000000 y^4 +$
 $1868791077878966779316797440000 t^4 + 2152492683035299645331865600000 t^3 + 4133858506987413474115584000 y^6 +$
 $593183444396626303776718848000 t^6 + 1195940388375843767517708288000 t^5 + 4508237287183574491987968000 t^{10} +$
 $176738127717888 t^{21} + 18145114445703168 t^{20} - 222928181554839552 y^{20} + 901090715540520960 t^{19} +$
 $2874438758591594960 t^{18} - 33349155240678522880 y^{18} + 659893943249566433280 t^{17} + 76039005283520519388266496000 t^8 +$
 $235205268992084216540823552000 t^7 - 768412131911995125399552000 y^8 + 117773106967986435753246720000 -$
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 $3011263210946964750336000 ty^{12} + 604420847843232406988390400 t^{10} y^2 + 1037969942797190053232640000 t^8 y^4 +$
 $120959036049128561836032000 t^6 y^6 + 113114398260326628851712000 t^4 y^8 - 36548575297472320398950400 t^2 y^{10} +$
 $3205417958829884555919360000 t^2 y^2 + 4480517614084764651749376000 t^7 y^4 + 2325188969569593772631654400 t^5 y^6 +$
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 $83899195092893612113920 t^6 y^{10} - 76746945159694909440000 t^4 y^{12} - 35148427734306049228800 t^2 y^{14} +$
 $1191331979868648348057600 t^{13} y^2 + 3449795330852492673024000 t^{11} y^4 + 4775536297066455524966400 t^9 y^6 +$
 $2921381801038092592742400 t^7 y^8 + 253040379841001344204800 t^5 y^{10} - 383361740668007350272000 t^3 y^{12} -$
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 $32538720614656889585664000 t^8 y^6 + 14483209688986982075596800 t^6 y^8 - 411235236522993962188800 t^4 y^{10} -$
 $1355145963134720252313600 t^2 y^{12} + 10691216638484152320 t^{17} y^2 + 53014598299303280640 t^{15} y^4 +$
 $138915698135971921920 t^{13} y^6 + 19301003619959004160 t^{11} y^8 + 96244641548615024640 t^9 y^{10} - 97291407885619691520 t^7 y^{12} -$
 $1343708942544823910400 t^5 y^{14} + 3061897313712561192960 t^3 y^{16} - 16314289650149621760 ty^{18} + 306073498299531264000 t^{16} y^2 +$
 $1438130703868090122240 t^8 y^{10} - 1260748520870746521600 t^6 y^{12} - 1592115706861505740800 t^4 y^{14} -$

$$\begin{aligned}
& 532405696323555164160 t^2 y^{16} + 6270397787367580631040 t^{15} y^2 + 24189366250357810790400 t^{13} y^4 + \\
& 47401219751155272253440 t^{11} y^6 + 46370088030380123750400 t^9 y^8 + 13851545583984385720320 t^7 y^{10} - \\
& 11439122646585248317440 t^5 y^{12} - 9335624257566985420800 t^3 y^{14} - 1623390039680105840640 t y^{16} + \\
& 2570736403169280 t^{19} y^2 + 15995693175275520 t^{17} y^4 + 54165310223155200 t^{15} y^6 + 101108579083223040 t^{13} y^8 + \\
& 71899434014736384 t^{11} y^{10} - 106517680021831680 t^9 y^{12} - 324625310542725120 t^7 y^{14} - 360694789491916800 t^5 y^{16} - \\
& 199495389743677440 t^3 y^{18} - 45598946227126272 t y^{20} + 238792848116613120 t^{18} y^2 + 1329419832789565440 t^{16} y^4 + \\
& 3972122749698048000 t^{14} y^6 + 6426011915067064320 t^{12} y^8 + 3866591784792489984 t^{10} y^{10} - 4686777920960593920 t^8 y^{12} - \\
& 11109399516351037440 t^6 y^{14} - 8816983743135744000 t^4 y^{16} - 2925932382907269120 t^2 y^{18} - 3405391301709054049517568000 t^3 y^6 + \\
& 576309098933996344049664000 t y^8 - 3100393880240560105586688000 t y^6 - 50020774645148296245411840000 t^5 y^2 - \\
& 275211702918588327977287680000 t^2 - 27617753500087141471363200000 t^3 y^4 - 196855494605670927122432000 t^4 y^6 + \\
& 283468940449493450489856000 t^2 y^8 - 5126123678130560386990080000 t^6 y^4 - 4434109004677459017203712000 t^8 y^2 - \\
& 12394138836776158532468736000 t^5 y^4 - 13546419798664488991850496000 t^7 y^2 - 403592378069118683499724800000 t^4 - \\
& 418845308211361149267476480000 t^3 - 800800884399037728423936000 y^6 - 149492548546980470939713536000 t^6 - \\
& 280318661681845016897519616000 t^5 - 1522258849047288510362419200 t^{10} - 6025163444928 t^{22} - \\
& 22296070864481856100761600000 t^4 y^4 + 3377699720527872 y^{22} - 648039801632256 t^{21} - 32790901832769536 t^{20} + \\
& 580964356059833796028006400 y^{20} - 1134646878391418880 t^{19} - 27495580968731934720 t^{18} + 46071824188000174080 y^{18} - \\
& 510844127676512993280 t^{17} - 22050493968007895300702208000 t^8 - 63555369042495675404648448000 t^7 + \\
& 493536726717588129710080000 y^8 - 4183047101903680881819648000 t^2 y^2 - 31372686473663319040327680000 t^6 y^2 - \\
& 754742479481446092800 t^{16} + 1840193325741721518080 y^{16} - 9078023180659848182720 t^{15} - 902753108091886318387200 t^{14} + \\
& 66281277155862537830400 y^{14} - 7496653729684307469926400 t^{13} - 5229858551292756026982400 t^{12} + \\
& 2341367234189406398054400 y^{12} - 307379815035243715362816000 t^{11} - 6336583773626709949022208000 t^9 + \\
& 97174929823379754602987520000 y^2 + 19834084996061648983672320000 t y^2 + 161170639010888159078645760000 t^2 y^2 - \\
& 38057250485359866261012480000 t^4 y^2 - 19755464273354181763399680000 t^2 y^4 + 41781236183833579848990720000 t^3 y^2 - \\
& 3442478512405550727168000000 t y^4 - 88329830225989826814935040000 t + 3896811218593394060165120000 t^9 y^4 + \\
& 59093356059833796028006400 y^{10} - 41210512352947664112844800 t^{11} y^2 - 86497495233099171102720000 t^9 y^4 - \\
& 77245611005263774482432000 t^7 y^6 - 16967159739048994327756800 t^5 y^8 + 9137143824368080099737600 t^3 y^{10} + \\
& 2363295091890087316684800 t y^{12} - 240406346912241341693952000 t^{10} y^2 - 420048526320446686101504000 t^8 y^4 - \\
& 290648621196199221578956800 t^6 y^6 - 19542805012884637089792000 t^4 y^8 + 31887474763586632836710400 t^2 y^{10} - \\
& 1147998986679263384567808000 t^3 y^2 - 1645342696130940040642560000 t^7 y^4 - 859156192363493405491200000 t^5 y^6 + \\
& 504801856486928988241920000 t^3 y^8 + 64147061205603357347020800 t y^{10} - 63821356064391875788800 t^{14} y^2 - \\
& 215612208178280792064000 t^{12} y^4 - 358165222279984164372480 t^{10} y^6 - 273879543847321180569600 t^8 y^8 - \\
& 31630047480125168025600 t^6 y^{10} + 71880326375251378176000 t^4 y^{12} - 29993466863329424179200 t^2 y^{14} - \\
& 673814362109225258188800 t^{13} y^2 - 1964354774041353623961600 t^{11} y^4 - 2711560051221407465472000 t^9 y^6 - \\
& 1551772466677176650956800 t^7 y^8 + 61685285478449094328320 t^5 y^{10} + 338786490783680063078400 t^3 y^{12} + \\
& 64160081731371034214400 t y^{14} - 5811730484042690828697600 t^{12} y^2 - 14462129940616761783091200 t^{10} y^4 - \\
& 16247243675094866303385600 t^8 y^6 - 6331047760999054363852800 t^6 y^8 + 1477463996415330798796800 t^4 y^{10} + \\
& 1129223704105111781376000 t^2 y^{12} - 13503242572038144000 t^{17} y^2 - 67185447127241195520 t^{15} y^4 - \\
& 176647921944955453440 t^{13} y^6 - 245802861360379330560 t^{11} y^8 - 119844225322340843520 t^9 y^{10} + 135080198664722841600 t^7 y^{12} + \\
& 238817356029225861120 t^5 y^{14} + 133101424080888791040 t^3 y^{16} + 25011866430508892160 t y^{18} - 293924896282855342080 t^{16} y^2 - \\
& 1295858906269168435200 t^{14} y^4 - 2962576234447204515840 t^{12} y^6 - 347756602278509281280 t^{10} y^8 - \\
& 1298582398498536161280 t^8 y^{10} + 1429890330823156039680 t^6 y^{12} + 1750429548293809766400 t^4 y^{14} + \\
& 608771264880039690240 t^2 y^{16} - 4875233003784319795200 t^{15} y^2 - 18898835776356954931200 t^{13} y^4 - \\
& 37108313617168513105920 t^{11} y^6 - 35822107135945211904000 t^9 y^8 - 8989199474238601297920 t^7 y^{10} + \\
& 11512041773954236416000 t^5 y^{12} + 8787106933576512307200 t^3 y^{14} + 1566822013610565304320 t y^{16} - \\
& 96402615118848 t^{20} y^2 - 666487215636480 t^{18} y^4 - 2538998916710400 t^{16} y^6 - 5416531022315520 t^{14} y^8 - \\
& 4493714625921024 t^{12} y^{10} + 7988826001637376 t^{10} y^{12} + 30433622863380480 t^8 y^{14} + 4508684868489600 t^6 y^{16} + \\
& 37405385576939520 t^4 y^{18} + 17099604835172352 t^2 y^{20} - 9426033478287360 t^{19} y^2 - 58650874976010240 t^{17} y^4 - \\
& 198606137484902400 t^{15} y^6 - 370731456638484480 t^{13} y^8 - 263631258054033408 t^{11} y^{10} + 390564826746716160 t^9 y^{12} + \\
& 1190292805323325440 t^7 y^{14} + 1322547561470361600 t^5 y^{16} + 731483095726817280 t^3 y^{18} + 167196136166129664 t y^{20} - \\
& 445467359936839680 t^{18} y^2 - 2485059295279841280 t^{16} y^4 - 7441912400141352960 t^{14} y^6 - 12063127262472437760 t^{12} y^8 - \\
& 7218348116146126848 t^{10} y^{10} + 9121069489276846080 t^8 y^{12} + 21657718249047982080 t^6 y^{14} + 17541344626747637760 t^4 y^{16} + \\
& 6117858618806108160 t^2 y^{18}
\end{aligned}$$

and

$$\begin{aligned}
d_3(x, y, t) = & 16777216 x^{12} + (-738197504 - 150994944 t) x^{11} + (6090129408 t + 15435038720 + 622854144 t^2 + \\
& 100663296 y^2) x^{10} + (-754974720 t y^2 - 1557135360 t^3 - 200991047680 - 3690987520 y^2 - 22837985280 t^2 - \\
& 115762790400 t) x^9 + (251658240 y^4 + 64760053760 y^2 + 51385466880 t^3 + 2627665920 t^4 + 1799188643840 + \\
& 1356689571840 t + 390699417600 t^2 + 2548039680 t^2 y^2 + 24914165760 t y^2) x^8 + (-7381975040 y^4 - \\
& 10795131863040 t - 4070068715520 t^2 - 1509949440 t y^4 - 708669603840 y^2 - 11563863900160 - 781398835200 t^3 - \\
& 388560322560 t y^2 - 5096079360 t^3 y^2 - 77078200320 t^4 - 3153199104 t^5 - 74742497280 t^2 y^2) x^7 + \\
& (38755368960 t y^4 + 335544320 y^6 + 1019970846720 t^2 y^2 + 103347650560 y^4 + 28337221140480 t^2 + \\
& 6688604160 t^4 y^2 + 60710285475840 t + 130799370240 t^3 y^2 + 3963617280 t^2 y^4 + 80932110336 t^5 + \\
& 2759049216 t^6 + 1025585971200 t^4 + 54293755330560 + 7122620252160 t^3 + 5308311142400 y^2 + 3720515420160 t y^2) x^6 + \\
& (-8371159695360 t^2 y^2 - 1529956270080 t^3 y^2 - 6019743744 t^5 y^2 - 1509949440 t y^6 - 1773674496 t^7 - \\
& 23887400140800 t y^2 - 186336485048320 - 244321898987520 t - 136598142320640 t^2 - 42505831710720 t^3 - \\
& 28245114224640 y^2 - 87199580160 t^2 y^4 - 890534625280 y^4 - 5945425920 t^3 y^4 - 923027374080 t^5 - \\
& 147149291520 t^4 y^2 - 60699082752 t^6 - 8012947783680 t^4 - 465064427520 t y^4 - 7381975040 y^6) x^5 + \\
& (458103560601600 t^2 + 5573836800 t^4 y^4 + 108999475200 t^3 y^4 + 27682406400 t y^6 + 110361968640 t^5 y^2 + \\
& 2831155200 t^2 y^6 + 3762339840 t^6 y^2 + 107786901913600 y^2 + 105919178342400 t y^2 + 44788875264000 t^2 y^2 +
\end{aligned}$$

1434334003200 $t^4 y^2$ + 871995801600 $t^2 y^4$ + 10463949619200 $t^3 y^2$ + 3339504844800 ty^4 + 698761818931200 t +
 5106984550400 y^4 + 39849217228800 t^4 + 170747677900800 t^3 + 75833016320 y^6 + 576892108800 t^6 +
 6009710837760 t^5 + 831409920 t^8 + 32517365760 t^7 + 251658240 y^8 + 460685574144000 x^4 + (-1048142728396800 t^2 -
 81749606400 $t^4 y^4$ - 3344302080 $t^5 y^4$ - 1612431360 $t^7 y^2$ - 2831155200 $t^3 y^6$ - 754974720 ty^8 - 871995801600 $t^3 y^4$ -
 227499048960 ty^6 - 860600401920 $t^5 y^2$ - 41523609600 $t^2 y^6$ - 55180984320 $t^6 y^2$ - 277136640 t^9 -
 292272524492800 y^2 - 323360705740800 ty^2 - 158878767513600 $t^2 y^2$ - 7847962214400 $t^4 y^2$ - 5009257267200 $t^2 y^4$ -
 44788875264000 $t^3 y^2$ - 15320953651200 ty^4 - 1382056722432000 t - 19704840192000 y^4 - 128060758425600 t^4 -
 458103560601600 t^3 - 459024629760 y^6 - 3004855418880 t^6 - 23909530337280 t^5 - 12194012160 t^8 -
 247239475200 t^7 - 3690987520 y^8 - 792542262067200 x^3 + (1554813812736000 t^2 + 490497638400 $t^4 y^4$ +
 1592524800 $t^4 y^6$ + 849346560 $t^2 y^8$ + 1254113280 $t^6 y^4$ + 453496320 $t^8 y^2$ + 36787322880 $t^5 y^4$ + 17736744960 $t^7 y^2$ +
 31142707200 $t^3 y^6$ + 8304721920 ty^8 + 3756942950400 $t^3 y^4$ + 1032805416960 ty^6 + 3531582996480 $t^5 y^2$ +
 255936430080 $t^2 y^6$ + 322725150720 $t^6 y^2$ + 3048503040 t^9 + 544467635404800 y^2 + 657613180108800 ty^2 +
 363780793958400 $t^2 y^2$ + 25193742336000 $t^4 y^2$ + 17236072857600 $t^2 y^4$ + 119159075635200 $t^3 y^2$ + 44335890432000 ty^4 +
 1783220089651200 t + 49143821107200 y^4 + 257683252838400 t^4 + 786107046297600 t^3 + 1727382159360 y^6 +
 8966073876480 t^6 + 57627341291520 t^5 + 62355744 t^{10} + 69536102400 t^8 + 965846384640 t^7 + 23488102400 y^8 +
 100663296 y^{10} + 891610044825600 x^2 + (-1337415067238400 t^2 - 1408853606400 $t^4 y^4$ - 11678515200 $t^4 y^6$ -
 6228541440 $t^2 y^8$ - 9196830720 $t^6 y^4$ - 3325639680 $t^8 y^2$ - 147149291520 $t^5 y^4$ - 69155389440 $t^7 y^2$ -
 127968215040 $t^3 y^6$ - 35232153600 ty^8 - 8618036428800 $t^3 y^4$ - 2591073239040 ty^6 - 7558122700800 $t^5 y^2$ -
 774604062720 $t^2 y^6$ - 882895749120 $t^6 y^2$ - 8503056 t^{11} - 11589350400 t^9 - 634836431667200 y^2 -
 816701453107200 ty^2 - 493209885081600 $t^2 y^2$ - 44684653363200 $t^4 y^2$ - 33251917824000 $t^2 y^4$ - 181890396979200 $t^3 y^2$ -
 73715731660800 ty^4 - 1337415067238400 t - 71259547238400 y^4 - 294790142361600 t^4 - 777406906368000 t^3 -
 3871845908480 y^6 - 14406835322880 t^6 - 77304975851520 t^5 - 457275456 t^{10} - 181096197120 t^8 -
 1921301544960 t^7 - 76168560640 y^8 - 738197504 y^{10} - 75582720 $t^9 y^2$ - 268738560 $t^7 y^4$ - 477757440 $t^5 y^6$ -
 424673280 $t^3 y^8$ - 150994944 ty^{10} - 594406696550400 x + 8312979456000 $t^3 y^4$ + 57126420480 ty^8 +
 944765337600 $t^6 y^2$ + 531441 t^{12} + 193651015680 $t^3 y^6$ + 16777216 y^{12} + 31177872 t^{11} + 15091349760 t^9 +
 356725555200000 y^2 + 476127323750400 ty^2 + 306263044915200 $t^2 y^2$ + 34104449433600 $t^4 y^2$ + 2903884431360 ty^6 +
 6702698004480 $t^5 y^2$ + 971652464640 $t^2 y^6$ + 445805022412800 t + 46939294924800 y^4 + 145763794944000 t^4 +
 334353766809600 t^3 + 4160078479360 y^6 + 9663121981440 t^6 + 44218521354240 t^5 + 869201280 t^{10} +
 180122019840 t^8 + 1543589498880 t^7 + 27643399372800 $t^2 y^4$ + 123302471270400 $t^3 y^2$ + 53444660428800 ty^4 +
 501530650214400 t^2 + 1615881830400 $t^4 y^4$ + 23994040320 $t^4 y^6$ + 13212057600 $t^2 y^8$ + 18393661440 $t^6 y^4$ +
 6483317760 $t^8 y^2$ + 211328040960 $t^5 y^4$ + 94595973120 $t^7 y^2$ + 108045271040 y^8 + 1677721600 y^{10} +
 5668704 $t^{10} y^2$ + 25194240 $t^8 y^4$ + 59719680 $t^6 y^6$ + 79626240 $t^4 y^8$ + 56623104 $t^2 y^{10}$ + 277136640 $t^9 y^2$ +
 985374720 $t^7 y^4$ + 1751777280 $t^5 y^6$ + 1557135360 $t^3 y^8$ + 553648128 ty^{10} + 198135565516800.